SUPPORT FOR VISION RESEARCH

Volume Three

VISION research

A NATIONAL PLAN

1983-1987

U.S. DEPARTMENT OF HEALTH
AND HUMAN SERVICES
Public Health Service
National Institutes of Health

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Vol.3

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SUPPORT FOR VISION RESEARCH Volume Three

VISION research

A NATIONAL PLAN 1983-1987

AMERICAN FOUNDATION FOR THE BLIND
15 WEST 16th STREET
NEW YORK, N.Y. 10011

U.S. DEPARTMENT OF HEALTH
AND HUMAN SERVICES
Public Health Service
National Institutes of Health

NIH Publication No. 83-2477

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PREFACE

SUPPORT FOR VISION RESEARCH is Volume Three of the National Advisory Eye Council report entitled, *Vision Research—A National Plan: 1983–1987.*

The complete National Plan presents a comprehensive and detailed assessment of the current NEI program as well as specific recommendations for program development over the next five years. These include program priorities and projections of resource requirements for each major area of vision research that the NEI supports. Readers desiring additional information should consult the following volumes:

Executive Summary (Overview of the entire Plan).

Volume One—The 1983 Report of the National Advisory Eye Council (Background, Summary Panel Reports and Resource Requirements, Implementation Strategy, Cross-Cutting Research Areas and Issues, Planning Participants, Planning Strategy and Process).

Volume Two—Reports of the Program Panels

Part One—*Report of the Retinal and Choroidal Diseases Panel*

Part Two—*Report of the Corneal Diseases Panel*

Part Three—*Report of the Cataract Panel*

Part Four—*Report of the Glaucoma Panel*

Part Five—*Report of the Strabismus, Amblyopia, and Visual Processing Panel*

Part Six—*Report of the Panel on Visual Impairment and Its Rehabilitation.*

Volume Three—Support for Vision Research (Data on vision research projects supported by the NEI in FY 1981 and by other government and private organizations in 1980-1981).

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INTRODUCTION

THIS VOLUME OF Vision Research—A National Plan: 1983–1987 contains vision research project data used by the National Advisory Eye Council and its Panels and consultants in assessing research needs and opportunities, identifying priorities for future support, and addressing major issues relating to the National Eye Institute's program. The publication of these data (FY 1981 for NEI and calendar 1980–1981 for other organizations) fulfills the recommendations made in the Council's first report, *Vision Research Program Planning*, published in 1975, which stated that the National Eye Institute should provide for "periodic distribution of vision research program planning material to the research community" and that an "analysis of the research program" be prepared.

The present volume contains, as did its antecedents in 1975, 1976, and 1978, information on vision research projects funded by the National Eye Institute and by other components of the National Institutes of Health; other agencies of the Department of Health and Human Services; other Federal Government programs; and selected national private, voluntary, and philanthropic organizations. Projects supported by state and local governments, foreign governments, universities, corporations, and the resources of individual investigators are not included because information about these sources was either incomplete or unavailable.

In publishing these data, the Council reaffirms its belief that a periodic survey of vision research projects provides information that is essential for assessing gaps in NEI support and identifying research areas for which funding appears to be adequate at present. By examining support provided not only by the National Eye Institute but also by other public and private agencies, the Council and its consultants and the NEI staff acquire broad insight into the relevance of vision research to a variety of scientific and public interests. Also, through this process, projects are identified whose primary goals may be other than the understanding of visual processes and the prevention, diagnosis, and treatment of visual disorders, but which nevertheless have some relevance to the interests of the National Eye Institute.

TABLE 1. Summary of Vision Research Funding, FY 1981*

	Amount of Funding	Percent of Funds
Federal Government		
National Eye Institute	$117,983,000	85
National Institutes of Health (Exclusive of NEI)	10,559,518	7
Department of Health and Human Services (Exclusive of NIH)	702,527	1
Other Federal Departments	6,845,275	5
National Private, Philanthropic, and Voluntary Health Organizations	2,357,125	2
Total	**$138,447,445**	**100**

*Funding for organizations other than the National Eye Institute is 1980-1981.

Table 1 summarizes the data on the vision research projects listed in this volume. The Table shows that by combining total NEI funding in FY 1981 with funding for vision-related research by other agencies in 1980–1981, it can be estimated that over $138

million was spent in FY 1981 for vision research by Federal Government and national not-for-profit organizations in the United States. These funds were provided by the National Eye Institute, other NIH components and other DHHS agencies, other Federal Government programs, and by national private, philanthropic, and voluntary health organizations. Of these, the National Eye Institute was the largest single source of vision research support, accounting for 85 percent of the total funds. It should be noted that the amount shown for the National Eye Institute, $117,983,000, is the total NEI appropriation for FY 1981. This sum exceeds the total amount of the NEI extramural and intramural projects listed in this volume because it includes funds for NEI direct operations and program management.

Excluded from the totals for other agencies is approximately $15.5 million in projects listed in this volume which are judged by the NEI staff to have "indirect relevance" to the mission and program of the National Eye Institute, as explained below.

Table 2 provides more detail on the sources of non-NEI vision research funding. That components of NIH other than the National Eye Institute provide support for vision research demonstrates the variety of disease and scientific problems with which this discipline is concerned. In some instances, this support is for projects that include the eye among a number of organ systems in which a particular disease is being studied. In such cases, an attempt has been made to identify the portion of funding limited to the eye alone, although this is frequently difficult to do. The fact that a part of NIH other than the National Eye Institute is supporting a given project indicates either that the primary focus of the research is oriented to the mission of that Institute (for example, a project investigating the role of systemic hypertension in diabetic retinopathy may be supported by the National Heart, Lung, and Blood Institute) or that NEI funds were not available to support the proposed project at the time it was approved but another Institute, whose mission also encompasses the project, was interested in and able to fund it.

Vision research supported by other DHHS programs and by other Federal agencies is also closely related to the mission of the funding organization. Examples are a study of infectious keratoconjunctivitis in cattle supported by the Department of Agriculture and investigations by the Department of Defense to improve treatment of acute laser injury of the eye. Vision research supported by the National Science Foundation is primarily concerned with basic neural mechanisms; vision research underway in Veterans Administration hospitals is concerned with the eye problems often encountered in patients seen in these institutions. In a number of instances, Veterans Administration research projects are conducted in conjunction with projects supported by the NEI and frequently have the same principal investigator.

It is important to note that the total listed for "National Private, Philanthropic, and Voluntary Health Organizations" includes only support for the research awards listed in this volume. It excludes other research-related support such organizations may provide, including facilities construction and equipment.

ORGANIZATION

Project information in this volume is organized under three major headings: (1) NEI program data for FY 1981, (2) research of *direct relevance* to the NEI program that was sponsored by other organizations in 1980–1981, and (3) research of *indirect relevance* to the NEI program that was sponsored by other organizations in 1980–1981. Projects considered directly relevant to the NEI program are defined as those whose primary objective, as determined by NEI staff review of their abstracts, is to learn something about either the normal structure or function of the visual system or about the etiology, pathogenesis, prevention, diagnosis, or treatment of visual disorders. Those considered to be of indirect relevance are projects in which the visual system or its components are only minor or incidental elements or in which the eye is used as a test system or tool to gain information primarily on topics other than normal or abnormal vision.

DATA SOURCES

The primary source used to identify these projects was the Smithsonian Science Information Exchange (SSIE). Abstracts of over 1,200 research projects identified by the SSIE as vision-related were carefully reviewed by members of the NEI's extramural program staff. Lists of the projects selected by the NEI staff for inclusion in this report were submitted to each supporting agency for verification or completion. As a result of the interchange of information which followed, scores of additional projects were identified and reviewed for relevance to the NEI's program, and projects no longer active were deleted.

Whether a project is listed as having either direct or indirect relevance to the NEI program has in great part been determined by the individual reviewer's judgment. And, because titles alone frequently do not indicate the actual scope or content

TABLE 2. Sources of Vision Research Funding with Direct Relevance to the NEI Program, 1980-1981.

Supporting Organization	Total Awarded
National Institutes of Health (Exclusive of NEI)	
Fogarty International Center	$267,051
National Cancer Institute	440,509
National Heart, Lung, and Blood Institute	700,911
National Institute of Allergy and Infectious Diseases	1,591,997
National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases	1,226,419
National Institute of Child Health and Human Development	1,246,848
National Institute of Dental Research	117,144
National Institute of Environmental Health Sciences	99,555
National Institute of General Medical Sciences	527,752
National Institute of Neurological and Communicative Disorders and Stroke	4,021,388
National Institute on Aging	255,334
National Library of Medicine	64,610
Subtotal	**$10,559,518**
Department of Health and Human Services (Exclusive of NIH)	
Alcohol, Drug Abuse, and Mental Health Administration	498,807
Bureau of Radiological Health	*
Food and Drug Administration	94,759
Health Services Administration	5,000
National Institute for Occupational Safety and Health	53,520
National Institute on Drug Abuse	50,441
Subtotal	**$702,527**
Other Federal Departments	
Department of Agriculture	470,402
Department of Defense, Air Force	1,091,626
Department of Defense, Army	1,516,785
Department of Defense, Navy	263,000
Department of Energy	33,320
Environmental Protection Agency	40,000
National Aeronautics and Space Administration	30,000
National Institute of Handicapped Research	797,481
National Science Foundation	2,601,161
Uniformed Services University of the Health Sciences	1,500
Veterans Administration	*
Subtotal	**$6,845,275**
National Private, Philanthropic, and Voluntary Agencies	
American Cancer Society, Inc.	40,000
Fight for Sight, Inc.	524,545
Juvenile Diabetes Foundation	39,166
National Multiple Sclerosis Society	14,000
National Society to Prevent Blindness	79,542
Research to Prevent Blindness, Inc.	804,250
Retinitis Pigmentosa Foundation	755,622
Spencer Foundation	50,000
The Seeing Eye, Inc.	50,000
Subtotal	**2,357,125**
Total	**$20,464,445**

*Support provided, but total amount of funding is unknown.

of the project, some listed projects may not seem to be related at all to the NEI program. However, the Council is satisfied with the accuracy and comprehensiveness of these lists, given the present limitations of methods for coding, retrieving, and analyzing the type of data they contain.

Some information on funding by private organizations was obtained from the SSIE, but most of this information was acquired by direct contact with groups known to support vision research.

Not included in this compilation is support from state and local governments, other corporations, national organizations not generally known to be concerned with vision research, individual philanthropists, and the private resources of individual investigators. Although the Council realizes that support from these sources may be substantial, reliable data are virtually impossible to obtain either directly or from secondary sources.

DATA CLASSIFICATION

Within each of the three categories, most projects are listed according to their relevance to one of the five NEI programs: *Retinal and Choroidal Diseases*, *Corneal Diseases*, *Cataract*, *Glaucoma*, and *Strabismus, Amblyopia, and Visual Processing* or to the special area of *Visual Impairment and Its Rehabilitation*. In addition to these six, a *Multiprogram* category has been established for projects that cut across program lines.

Funding often had to be estimated for vision research projects supported by organizations other than the NEI, especially those funded through large multiproject grants. This was done either by dividing the total dollars awarded for that grant by the total number of its separate projects or components and multiplying the resulting average figure by the number of vision research components, or by using the funding agency's best estimate of the relevant amount. Unfortunately, some projects are listed for which no estimate of funding could be made. This is often the case with research projects conducted intramurally by government scientists (for example, those working for the Veterans Administration), because there is seldom a project-by-project accounting of the costs of such research.

For the National Eye Institute's intramural research projects, the total direct costs have been estimated. These costs cannot be compared with the direct costs listed for NEI grant-supported projects because the amounts listed for grants represent only the National Eye Institute's support for a project. The NEI frequently does not pay the total costs of these projects: complementary and cost sharing support is provided by the grantee institution, and in many cases additional support is furnished by another funding organization.

NEI PROGRAM DATA

Vision research projects supported by the NEI during FY 1981 are divided into seven sections: the five NEI programs, Visual Impairment and Its Rehabilitation, and the Multiprogram category. Within the first six sections, the following lists are included when applicable: Research Grants (alphabetically by principal investigator and by subprogram), including Project Grants (R01), Cooperative Clinical Research Grants (R10), Conference Grants (R13), and New Investigator Research Awards (R23); Core Center Grants (P30); Specialized Clinical Research Center Grants (P50); Institutional National Research Service Awards (T32); Individual National Research Service Awards (F32); Research Career Development Awards (K04) and Academic Investigator Awards (K07); Research Contracts (N01), including NIH Interagency Agreements (Y01); and Intramural Research Projects (Z01).

These lists include all projects that were *active* in FY 1981. Some active awards did not receive FY 1981 funds but were supported with money appropriated during a previous year. For these awards, a zero appears in the funding column.

RESEARCH SPONSORED BY OTHER ORGANIZATIONS— PROJECTS OF DIRECT RELEVANCE TO THE NEI MISSION

Again, the projects grouped within this category are primarily concerned with gaining new knowledge and understanding of the normal functioning of the eye and visual system, the pathology of visual disorders, and the sciences underlying vision.

Within each of the five NEI programs to which these projects correspond, there is a list of the grants, contracts, and intramural projects supported by components of NIH and DHHS; other Federal agencies; and private, philanthropic, and voluntary organizations.

RESEARCH SPONSORED BY OTHER ORGANIZATIONS—PROJECTS OF INDIRECT RELEVANCE TO THE NEI MISSION

In this category the vision-related portion of the listed projects may be incidental and involve ocular tissues or visual function only secondarily, if at all. Examples are a study of visual search and camouflage, an investigation of night vision performance, an investigation of automated neurophysiological diagnosis of dyslexia, and a study of eye movements of hyperkinetic children. Other kinds of projects included in this category are those in which basic mechanisms that may relate to the eye are studied or in which systemic factors that may affect the eye are investigated, but in tissues other than those of the visual system. Such projects, which account for almost $15.5 million, are listed here because they relate to vision research in its broadest sense and may be of interest to the readers of this report. This funding, however, is not included in Tables 1 and 2 which summarize vision research support in the United States. As in the preceding category, projects listed are supported by other components of NIH and DHHS; other Federal agencies; and private, philanthropic, and voluntary organizations. Although they are grouped according to their relationship to the five NEI programs, the projects in this category bear only indirectly upon the mission of the NEI.

TERMS USED IN NEI DATA TABLES

Grant, Contract, or Project Number:

This is the official Public Health Service Identification number, which consists of several parts.

TYPE

The first digit refers to the project's application type according to the following code:

1. New. A request for support for a project or program not currently receiving Public Health Service support. If approved, it must compete with other new applications, competing renewal applications, and competing supplemental applications for available funds in accordance with funding priorities.

2. Competing Renewal. An application for extending support for an existing project whose current Project Period is terminating. These applications are subject to the same review as new applications, and they compete for available funds with other competing renewal applications, new applications, and competing supplemental applications.

3. Supplement. A request for additional funding for an active project to support certain types of program expansion or administrative cost increases. Applications for program expansions are subject to the same review procedures as new or competing renewal applications. Applications for funds to meet increased administrative costs for approved activities usually do not require a formal assessment by peer reviewers but are subject to the approval of the NEI and the availability of funds.

5. Noncompeting Continuation. A request for continued support of a project within a previously approved Project Period. The level of support is determined by the NEI after consideration of the Council's previously recommended level of support, the progress of the project, and the availability of funds. It is the policy of the National Institutes of Health to do everything it can within the boundaries of prudent management to avoid discontinuities of support during a Project Period.

7. Change of Grantee or Training Institution. Used to indicate that a grantee has moved from one research institution to another.

SUPPORT MECHANISM

The second part of the number is a three-digit code identifying the NIH intramural or extramural mechanism used by the NEI.

Research Grants

R01 Project Grant (traditional). Supports a discrete, specified, circumscribed project initiated and performed by the named principal investigator.

R09 Scientific Evaluation. Provides the chairman of an initial review group funds for operation of the review group.

R10 Cooperative Clinical Research Grant. Supports clinical evaluation of various methods of therapy for specific diseases. These are usually collaborative efforts among sponsoring institutions and principal investigators and are usually conducted under a common protocol.

R13 Conference Grant (traditional). Supports national and international meetings, conferences, and workshops.

R23 New Investigator Research Award. Supports laboratory and clinical studies by newly trained

investigators to aid the development of their research careers.

Center Grants

P30 Core Grant. Supports shared resources and facilities used by a number of investigators who hold active research project grants at the same or neighboring collaborating institutions.

P50 Specialized Clinical Research Center Grant. Supports research and development activities that are directed toward a specific disease or biomedical problem, especially toward improving the capability of applying scientific knowledge to clinical problems.

Research Contract

N01 Research Contract. Supports the development and/or application of new knowledge or the testing, screening, or evaluation of a product, material, device, or component for use by the scientific community. Typically, the NEI limits the use of this award to the support of multicenter clinical trials, to the maintenance of specialized research resources such as colonies of animals with visual system disorders which are similar to those observed in humans, or to the support of specialized instrumentation development.

Y01 NIH Interagency Agreement. A written reimbursable agreement by which a component of NIH provides a source of funds to another Federal agency to acquire specific products, services, or studies.

Training Awards

F32 Individual National Research Service Award. Awarded to individual applicants for up to three years of support of postdoctoral research training in laboratory and clinical sciences related to eye diseases and disorders of the visual system.

T09 Scientific Evaluation. To provide the chairman of the training award review committee funds for operation of the group.

T32 Institutional Grant for National Research Service Awards. Awarded to institutions to support research training programs that provide opportunities for individuals who wish to pursue research careers in the clinical and laboratory sciences related to vision and disorders of the visual system. These grants primarily are designed to support postdoctoral research and pre- and postresidency research training; however, a limited number of predoctoral positions are also supported.

Research Career Program Award

K04 Research Career Development Award. Encourages the further development of research careers of scientists who have demonstrated potential for independent research in vision and ophthalmology.

K07 Academic Investigator Award. Fosters the development of newly trained laboratory scientists and clinicians for careers as independent investigators in basic and applied vision science.

Intramural Research

Z01 Intramural Research. Projects conducted on the NIH campus by employees of the National Eye Institute.

For further discussion of these various support mechanisms, see pertinent sections of *Volume One, The 1983 Report of the National Advisory Eye Council.*

AWARDING ORGANIZATION, SERIAL NUMBER, AND SUFFIXES

The awarding organization is identified by the two letters which begin the next part of the grant number; "EY" signifies the National Eye Institute. The next five digits are assigned sequentially and represent the project's official serial number. The suffix that is separated from the serial number by a hyphen indicates how many years the project has been active (except for contracts, in which the suffix indicates the number of modifications). The letter "A" signifies that an amendment (addition or change) was made to the original grant application and that the project was resubmitted for peer review. The letter "S" signifies that a supplemental award was made to the project. Project numbers for NEI intramural projects conclude with "CB" for Clinical Branch, "LVR" for Laboratory of Vision Research, and "LSR" for Laboratory of Sensorimotor Research.

Other Columns

Project Period. Indicates the total period of time authorized for funding an award.

Subprogram (Area). A key to these letter codes appears at the beginning of each NEI program section.

Direct Costs Awarded FY 1981. Expenditures for personnel, consultants, equipment, supplies, travel, and other costs directly related to the performance of research under a specific grant.

Indirect Costs Awarded FY 1981. The costs incurred by an organization that are not readily identifiable with a particular project or program but are necessary to the operation of the organization and the performance of these projects and programs. Each institution has its own indirect cost rate; the FY 1981 average indirect cost rate for NIH was 29.5 percent of the Total Costs for all research grants.

Total Awarded FY 1981. The sum of Direct Costs and Indirect Costs in FY 1981. It does not include unobligated balances from previous years which may have been available to a project.

Stipend. A payment made to an individual under a fellowship or training grant using preestablished levels to provide living expenses during the project period.

Other Allowances. May include tuition and fees including the cost of medical insurance, supplies and equipment, faculty salary, and trainee travel to attend scientific meetings.

Professional Salaries (Intramural). Includes prorated salaries for all professional employees collaborating on a project.

Other Direct Costs (Intramural). Includes prorated salaries for technical and clerical support staff who worked on a project, prorated costs for laboratory and office supplies and equipment, and other charges associated with projects conducted within a laboratory or branch.

NATIONAL EYE INSTITUTE PROGRAM DATA

I. RETINAL AND CHOROIDAL DISEASES

SUBPROGRAMS:

Vascular, Inflammatory, and Neoplastic Disorders of the Retina and Choroid

1. Diabetic Retinopathy, Sickle Cell Retinopathy, and Other Vascular Abnormalities
2. Inflammatory Disorders
3. Tumors

Degenerative Disorders of the Retina

4. Developmental and Hereditary Disorders
5. Macular Degeneration
6. Retinal Detachment and Vitreous Disorders
7. Toxic and Environmental Disorders

Fundamental Processes and Retinal Disorders

8. Retinal Pigment Epithelium
9. Photoreceptors, Visual Pigments, and Phototransduction
10. Retinal Organization, Neurotransmission, and Adaptation
11. Glial Cells and the Retinal Microenvironment
12. Rescue and Regeneration of Neurons in the Optic Nerve and Retina

Related Areas of Research Opportunity and Need

13. Noninvasive Techniques in the Study of Retinal Disorders
14. Tissue Acquisition and Distribution: Human Donor Eyes and Animal Models

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Alphabetical Listing

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
ABRAMOV, ISRAEL Spectral Properties of Cells in the Goldfish Retina Brooklyn College/Psychology New York, New York	5 R01 EY01697-05	05/01/76- 04/30/82	10	$0	$0	$0
ABRAMS, GARY W Macular Photocoagulation Study Medical College of Wisconsin/Ophthalmology Milwaukee, Wisconsin	5 R10 EY02548-03	01/01/79- 12/31/83	5	29,080	20,213	49,293
ADAMS, ANTHONY J Early Vision Changes in Diabetics University of California, Berkeley/Optometry Berkeley, California	2 R01 EY02271-04	01/01/78- 04/30/84	1	96,178	26,795	122,973
ADLER, ALICE J Biochemical Aspects of Retinal Adhesion Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY03101-03	09/01/79- 08/31/82	6	48,199	39,084	87,283
ADOLPH, ALAN R Synaptic Transmitters and Vertebrate Retinal Function Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY03383-02	09/01/80- 08/31/85	10	64,318	48,408	112,726
AGUIRRE, GUSTAVO D Cone Degeneration--Structural and Functional Studies University of Pennsylvania/Clinical Studies Philadelphia, Pennsylvania	5 R01 EY01244-09	03/01/79- 02/29/84	4	86,399	54,881	141,280
AGUIRRE, GUSTAVO D Pigment Epithelial Hypertrophy Presbyterian--University of Pennsylvania Medical Center/ Ophthalmology Philadelphia, Pennsylvania	5 R01 EY03400-02	07/01/80- 06/30/84	4	12,673	6,411	19,084
ALBERT, ARLENE D Rhodopsin Structure and Environment in Vision State University of New York, Buffalo/Biochemistry Buffalo, New York	1 R01 EY03328-01A1	05/01/81- 04/30/84	9	34,248	14,622	48,870
ALBERT, DANIEL M Histopathologic Study of Pigmented Ocular Tumors Massachusetts Eye and Ear Infirmary/Ophthalmology Boston, Massachusetts	5 R01 EY01917-06	07/01/76- 01/31/85	3	134,986	49,802	184,788
ALBERT, DANIEL M Animal Model of Ocular Melanoma Massachusetts Eye and Ear Infirmary/Howe Laboratory Boston, Massachusetts	3 R01 EY02678-03S1	04/01/78- 01/31/82	3	43,482	0	43,482
ALFANO, ROBERT R The Fast Kinetics of the Primary Visual Processes City College of New York/Physics New York, New York	2 R01 EY02515-04	08/01/78- 07/31/84	9	59,868	35,861	95,729
ALPERN, MATTHEW Psychophysiological Studies of Ocular Abnormalities University of Michigan, Ann Arbor/Ophthalmology Ann Arbor, Michigan	5 R01 EY00197-24	09/01/78- 08/31/83	4	72,429	46,940	119,369

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
AMES, ADELBERT, III Energy Metabolism and Function in Retina Massachusetts General Hospital/Neurosurgical Service Boston, Massachusetts	5 R01 EY02245-04	04/01/78-08/31/83	10	52,799	19,794	72,593
ANDERSON, DON H Relationship of Mammalian Cones to Pigment Epithelium University of California, Santa Barbara/Biological Sciences Santa Barbara, California	2 R01 EY02082-05	09/01/77-08/31/86	8	77,357	22,073	99,430
ANDERSON, ROBERT E Chemistry and Metabolism of Retina Lipids Baylor College of Medicine/Ophthalmology Houston, Texas	5 R01 EY00871-10	02/01/78-01/31/83	9	111,414	39,389	150,803
APPLEBURY, MEREDITHE L Photoreception and Transduction in Vision Princeton University/Biochemical Sciences Princeton, New Jersey	2 R01 EY01542-07	07/01/78-06/30/86	9	110,490	69,594	180,084
APPLEBURY, MEREDITHE L Biochemistry of Photoreceptor Cells Princeton University/Biochemical Sciences Princeton, New Jersey	5 R01 EY02659-03	08/01/78-07/31/81	9	0	0	0
ARMAND, GERARD Structure of Vitreous Glycosaminoglycans Columbia University/Ophthalmology New York, New York	5 R01 EY03405-02	09/01/80-08/31/83	6	62,697	42,383	105,080
ARMSTRONG, DONALD Retinal Degeneration: An Approach to Therapy University of Colorado Health Sciences Center/Neurology Denver, Colorado	5 R01 EY02627-03	11/01/78-10/31/83	4	56,934	11,359	68,293
ARMSTRONG, DONALD Retinal Degeneration: An Approach to Therapy University of Florida/Ophthalmology Gainesville, Florida	7 R01 EY04083-01	06/01/81-11/30/83	4	30,950	13,742	44,692
ARNETT, DAVID W Function of Neuron Networks in Vertebrate Visual Systems University of Texas Medical Branch, Galveston/Physiology and Biophysics Galveston, Texas	5 R01 EY01897-05	05/01/78-11/30/81	10	0	0	0
BAKER, HOWARD D Human Visual Sensitivity and Visual Pigment Levels Florida State University/Psychology Tallahassee, Florida	5 R01 EY01394-07	06/01/79-05/31/82	9	21,844	11,533	33,377
BALAZS, ENDRE A Vitreous and Hyaluronate: Structure and Function Columbia University/Ophthalmology New York, New York	5 R01 EY01747-06	03/01/76-02/28/85	6	140,031	94,876	234,907
BARON, WILLIAM S Photoreceptor Information Processing in Primates SRI International/Psychobiology and Physiology Laboratory Menlo Park, California	3 R01 EY01579-06S1	07/01/78-09/30/81	10	9,998	11,238	21,236

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
BARON, WILLIAM S Human Retinal Information Processing SRI International/Psychobiology and Physiology Laboratory Menlo Park, California	5 R01 EY02856-03	02/01/79-01/31/82	13	49,428	47,709	97,137
BASINGER, SCOTT F Retina: Photoreceptor Membrane Synthesis and Function Baylor College of Medicine/Ophthalmology Houston, Texas	5 R01 EY01406-07	07/01/77-06/30/82	8	69,023	20,771	89,794
BAUM, GILBERT Ocular Tumor Diagnosis Yeshiva University/Ophthalmology New York, New York	5 R01 EY01804-03	08/01/77-04/30/81	3	0	0	0
BAYLOR, DENIS A Neural Signalling in the Retina Stanford University/Neurobiology Stanford, California	5 R01 EY01543-08	09/01/77-08/31/82	9	92,849	53,045	145,894
BEEBE, DAVID C Development of the Blood-Ocular Barriers Uniformed Services University of the Health Sciences/ Anatomy Bethesda, Maryland	5 R01 EY03429-02	07/15/80-06/30/83	1	25,151	0	25,151
BELLHORN, ROY W Blood-Retinal Barriers in Experimental Retinopathies Montefiore Hospital and Medical Center/Ophthalmology New York, New York	5 R01 EY02038-05	06/01/77-05/31/83	1	100,621	30,077	130,698
BERNARD, GARY D Optical Information Processing in Eyes Yale University/Ophthalmology and Visual Science New Haven, Connecticut	5 R01 EY01140-09	09/01/80-08/31/85	9	44,849	32,051	76,900
BERNSTEIN, MAURICE H Phagocytic Mechanisms of the Retinal Pigment Epithelium Wayne State University/Anatomy Detroit, Michigan	1 R01 EY03759-01	05/01/81-04/30/84	8	50,990	13,056	64,046
BERSON, ELIOT L Electrophysiological Studies of Retinal Degenerations Harvard University/Ophthalmology Boston, Massachusetts	5 R01 EY00169-11	06/01/79-05/31/82	4	104,082	69,060	173,142
BESHARSE, JOSEPH C Studies on Disk Renewal in Retinal Visual Cells Emory University/Anatomy Atlanta, Georgia	2 R01 EY02414-04	04/01/78-03/31/86	8	85,808	24,703	110,511
BESHARSE, JOSEPH C Visual Cell-Pigment Cell Interface and Disc Turnover Emory University/Anatomy Atlanta, Georgia	5 R01 EY03222-03	09/30/79-09/29/84	8	41,542	22,624	64,166
BIRD, ALAN C Disciform Macular Disease: Controlled Treatment Trial University of London London, United Kingdom	5 R01 EY02168-02	04/01/78-03/31/82	5	0	0	0

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
BIRGE, ROBERT R Photophysics of Visual Chromophores and Rhodopsin University of California, Riverside/Chemistry Riverside, California	2 R01 EY02202-04	04/01/78-03/31/85	9	46,990	13,947	60,937
BLAIR, NORMAN P Blood-Retinal Barrier in Experimental Diabetes University of Illinois Medical Center/Ophthalmology Chicago, Illinois	5 R01 EY03227-02	08/01/80-07/31/83	1	60,185	34,305	94,490
BLANKS, JANET C Retinal Differentiation, Cell Interactions, and Plasticity Estelle Doheny Eye Foundation/Electron Microscopy Laboratory Los Angeles, California	5 R01 EY03042-03	12/01/78-01/31/82	4	29,002	18,444	47,446
BLASIE, J KENT Structure and Function of Membranes Involved in Vision University of Pennsylvania/Johnson Foundation for Medical Physics Philadelphia, Pennsylvania	5 R01 EY00673-10	05/01/77-04/30/82	9	55,538	36,100	91,638
BOK, DEAN Electron Microscope Autoradiography of Ocular Tissues University of California, Los Angeles/Anatomy Los Angeles, California	5 R01 EY00444-13	12/01/76-11/30/81	8	75,898	23,533	99,431
BOK, DEAN Pathways for Color Vision in Retinas University of California, Los Angeles/Jules Stein Eye Institute Los Angeles, California	5 R01 EY01190-08	05/01/76-12/31/81	9	0	0	0
BOWEN, FRANK W Prematurity, Vitamin E, and Retrolental Fibroplasia Pennsylvania Hospital/Pediatrics Philadelphia, Pennsylvania	5 R01 EY01723-04	06/30/76-07/31/83	1	210,163	34,134	244,297
BOWNDS, M DERIC Molecular Biology of Visual Receptor Outer Segments University of Wisconsin, Madison/Molecular Biology Madison, Wisconsin	5 R01 EY00463-13	03/01/78-01/31/83	9	89,727	37,355	127,082
BRANDON, CHRISTOPHER J GABA- and Somatostatin-Neurons in Retinal Function University of Oregon Health Sciences Center/Anatomy Portland, Oregon	1 R01 EY03886-01	02/01/81-01/31/84	10	52,859	16,915	69,774
BRECHA, NICHOLAS C Localization of Neuropeptides in the Retina University of California, Los Angeles/Center for Ulcer Research and Education Los Angeles, California	1 R01 EY04067-01	07/06/81-06/30/84	10	70,647	19,576	90,223
BRENDEL, KLAUS Basement Membranes of the Eye in Diabetic Retinopathy University of Arizona/Pharmacology Tucson, Arizona	5 R01 EY01868-05	04/01/77-03/31/82	1	63,387	26,671	90,058
BRESNICK, GEORGE H Electroretinographic Studies in Diabetic Retinopathy University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	5 R01 EY03084-03	04/01/79-03/31/84	1	82,297	38,098	120,395

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
BRIDGES, C DAVID Photo- and Biochemical Reactions in the Visual System Baylor College of Medicine/Ophthalmology Houston, Texas	5 R01 EY02489-05	02/01/79-01/31/84	9	108,810	43,256	152,066
BROWN, H MACK Membrane Mechanisms Associated with Phototransduction University of Utah/Physiology Salt Lake City, Utah	5 R01 EY02290-03	01/01/79-03/31/82	9	35,604	17,694	53,298
BROWN, HAROLD M Transduction Mechanism of Photoreceptors University of Utah/Physiology Salt Lake City, Utah	2 R01 EY00762-10	03/01/76-01/31/86	9	105,570	50,656	156,226
BROWN, JOEL E Visual Receptor Potentials State University of New York, Stony Brook/Physiology and Biophysics Stony Brook, New York	2 R01 EY01914-06	05/01/76-06/30/85	9	55,139	23,067	78,206
BROWN, JOEL E Anatomy and Physiology of Vision State University of New York, Stony Brook/Physiology and Biophysics Stony Brook, New York	5 R01 EY01915-06	01/01/78-12/31/82	9	35,551	18,335	53,886
BROWN, KENNETH T Neurophysiology of the Vertebrate Retina University of California, San Francisco/Physiology San Francisco, California	5 R01 EY00468-22	06/01/75-05/31/85	10	157,800	50,624	208,424
BROWN, MICHAEL F Membrane Basis of Visual Excitation University of Virginia, Charlottesville/Chemistry Charlottesville, Virginia	1 R01 EY03754-01	05/01/81-04/30/84	9	75,249	22,162	97,411
BROWN, PAUL K Microspectrophotometry of Photoreceptors Harvard University/Biology Cambridge, Massachusetts	5 R01 EY03165-02	09/30/79-01/31/84	9	22,675	9,886	32,561
BUCK, STEVEN L Interaction in the Visual System University of Washington/Psychology Seattle, Washington	5 R01 EY03221-03	09/30/79-09/29/82	10	37,884	12,796	50,680
BUNT, ANN H Protein Transport in Retinal Photoreceptors and Axons University of Washington/Ophthalmology Seattle, Washington	5 R01 EY01311-08	02/01/77-01/31/82	9	70,933	24,490	95,423
BURKE, JANICE M Role of Proliferation in Vitreoretinal Pathology University of Arizona/Surgery Tucson, Arizona	1 R01 EY03441-01A1	09/01/81-08/31/84	6	56,744	20,143	76,887
BURKHARDT, DWIGHT A Vision and Intraretinal Potentials University of Minnesota, Minneapolis-St Paul/Psychology Minneapolis, Minnesota	5 R01 EY00460-13	02/01/78-01/31/83	10	30,724	12,778	43,502

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
BURNS, MARGARET S Ion Localization in Eye Physiology: New Techniques Montefiore Hospital and Medical Center/Ophthalmology New York, New York	2 R01 EY02093-04	04/01/78-03/31/84	10	112,101	10,260	122,361
BURNSIDE, MARY B Circadian Retinal Motility: Role of Cyclic Nucleotides University of California, Berkeley/Physiology-Anatomy Berkeley, California	1 R01 EY03575-01	12/01/80-11/30/83	9	57,834	17,929	75,763
BUYUKMIHCI, NED Effects of Scrapie on Retina and Optic Nerve University of California, Davis/Surgery Davis, California	3 R01 EY03299-02S1	08/01/79-10/31/81	4	3,491	1,082	4,573
BUZNEY, SHELDON M Properties of Retinal Vascular Cells in Tissue Culture Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY03515-02	07/01/80-06/30/83	1	50,674	30,768	81,442
CALLENDER, ROBERT H Resonance Raman Study of Rhodopsin and Related Pigments City College of New York/Physics New York, New York	5 R01 EY03142-03	07/01/79-06/30/82	9	94,422	40,775	135,197
CARLSON, EDWARD C Microvessel Basement Membranes in Diabetic Retinopathy University of California, Davis/Human Anatomy Davis, California	1 R01 EY03667-01	05/01/81-10/31/81	1	38,031	21,287	59,318
CARLSON, EDWARD C Microvessel Basement Membrane in Diabetic Retinopathy University of North Dakota/Anatomy Grand Forks, North Dakota	7 R01 EY04293-01	11/01/81-04/30/85	1	42,638	0	42,638
CHAKRABARTI, BIRESWAR Role of Hyaluronic Acid in the Vitreous Structure Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY01760-05	05/01/76-01/31/83	6	41,750	25,414	67,164
CHAMBERLAIN, STEVEN C Adaptive Mechanisms That Maintain Visual Sensitivity Syracuse University/Institute for Sensory Research Syracuse, New York	5 R01 EY03446-02	07/01/80-06/30/83	9	48,539	29,682	78,221
CHANDRA, SURESH R Macular Photocoagulation Study University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	5 R10 EY03284-02	09/30/79-12/31/83	5	33,686	15,635	49,321
CHAPPELL, RICHARD L Neural Interactions of the Retina Hunter College/Biological Sciences New York, New York	5 R01 EY00777-09	05/01/75-04/30/85	10	41,869	11,518	53,387
CHAR, DEVRON H Eye Tumors: In Vitro Immunodiagnosis and Monitoring University of California, San Francisco/Ophthalmology San Francisco, California	2 R01 EY01441-04A1	09/30/77-02/28/85	3	65,731	16,471	82,202

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
CHAR, DEVRON H Uveitis: Specific and Nonspecific Cellular Reactivity University of California, San Francisco/Ophthalmology San Francisco, California	5 R01 EY01759-06	06/01/79- 05/31/83	2	67,977	21,073	89,050
CHAR, DEVRON H Eye Disease Histocompatibility Antigens University of California, San Francisco/Ophthalmology San Francisco, California	5 R01 EY02072-03	07/01/77- 11/30/80	2	0	0	0
CICERONE, CAROL M Light-Induced and Inherited Retinal Degeneration University of California, San Diego/Psychology La Jolla, California	5 R01 EY03015-02	09/01/78- 04/30/81	4	0	0	0
CITRON, MARK C Local Circuitry for Pattern Recognition in the Retina Estelle Doheny Eye Foundation Los Angeles, California	5 R01 EY03462-02	09/01/80- 08/31/83	10	36,929	27,716	64,645
CLARKSON, JOHN G Branch Vein Occlusion Collaborative Study University of Miami/Ophthalmology Miami, Florida	5 R10 EY02468-03	07/01/78- 06/30/85	1	51,708	52,180	103,888
COHEN, ADOLPH I Cytology and Physiology of the Retina Washington University/Ophthalmology St. Louis, Missouri	5 R01 EY00258-19	09/01/79- 08/31/84	9	101,082	58,590	159,672
COLEMAN, D JACKSON Therapeutic Ultrasound in Ophthalmology Cornell University Medical Center/Ophthalmology New York, New York	2 R01 EY03174-03	04/01/79- 06/30/84	3	140,195	59,077	199,272
COLEMAN, D JACKSON Ultrasonic Evaluation of Ocular Tissues Cornell University Medical Center/Ophthalmology New York, New York	5 R01 EY03183-03	05/01/79- 04/30/84	3	120,930	58,295	179,225
COLES, JONATHAN A Ion Movements Across Glial Membranes in Retina University of Geneva/Experimental Ophthalmology Laboratory Geneva, Switzerland	1 R01 EY03504-01	02/01/81- 01/31/84	11	60,057	0	60,057
CONE, RICHARD A Rhodopsin, Diffusion, and Visual Excitation Johns Hopkins University/Biophysics Baltimore, Maryland	5 R01 EY00520-12	09/01/74- 01/31/85	9	53,628	29,618	83,246
COPENHAGEN, DAVID R Synaptic Interaction in the Vertebrate Retina University of California, San Francisco/Ophthalmology San Francisco, California	5 R01 EY01869-05	02/01/77- 01/31/83	9	75,726	22,855	98,581
CORLESS, JOSEPH M Retinal Rod Photoreceptor Membrane Structure/Function Duke University/Anatomy Durham, North Carolina	5 R01 EY01659-06	05/01/79- 04/30/82	9	91,307	55,053	146,360

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
CORWIN, THOMAS R Psychophysical Diagnosis of Retinitis Pigmentosa University of Rochester/Center for Visual Science Rochester, New York	3 R01 EY02366-03S1	09/01/78-08/31/81	4	500	300	800
COTLIER, EDWARD M Insulin and Growth Hormone Receptors in Retinal Vessels Yale University/Ophthalmology and Visual Science New Haven, Connecticut	5 R01 EY02905-03	04/01/79-03/31/82	1	63,606	34,983	98,589
CRESCITELLI, FREDERICK Properties of Photopic and Transmuted Visual Cells University of California, Los Angeles/Biology Los Angeles, California	2 R01 EY02178-04	04/01/78-03/31/84	9	37,906	12,092	49,998
CROSS, HAROLD E Vitreous Reactions to Injury University of Arizona/Surgery Tucson, Arizona	5 R01 EY01633-05	05/01/78-04/30/82	6	0	0	0
CUNHA-VAZ, JOSE G Blood-Retinal Barrier in Diabetes Mellitus University of Illinois Medical Center/Ophthalmology Chicago, Illinois	3 R01 EY03106-02S1	09/30/79-03/31/82	1	11,874	6,768	18,642
CUSANOVICH, MICHAEL A Regeneration of the Visual Pigment Rhodopsin University of Arizona/University Department of Biochemistry Tucson, Arizona	5 R01 EY01113-06	07/01/78-06/30/81	9	0	0	0
DACHEUX, RAMON F, II Functional Anatomy of a Mammalian Retina Harvard University/Anatomy Boston, Massachusetts	1 R23 EY03590-01	02/01/81-01/31/84	10	37,500	39,120	76,620
DAWSON, WILLIAM W Application of Laser Speckle to Macular Evaluation University of Florida/Ophthalmology Gainesville, Florida	5 R01 EY02985-03	04/06/79-03/31/82	13	38,000	14,341	52,341
DE VENECIA, GUILLERMO B The Primate Retina and Choroid in Malignant Hypertension University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	2 R01 EY02034-04A1	03/01/81-04/30/83	1	63,236	27,191	90,427
DE VOE, ROBERT D Analysis of Flicker Retinal Action Potentials Johns Hopkins University/Physiology Baltimore, Maryland	2 R01 EY00008-19	01/01/81-12/31/85	10	59,573	29,318	88,891
DEL CERRO, MANUEL Pathogenesis of Retinal Immunopathologies University of Rochester/Center for Brain Research Rochester, New York	2 R01 EY02632-04	09/01/78-08/31/84	2	80,436	41,813	122,249
DELORI, FRANCOIS C Trichromatic Oximetry of Retinal Vessels Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	2 R01 EY02094-04	01/01/78-12/31/83	1	93,495	54,103	147,598

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
DETWILER, PETER B Photoreceptors and 2nd Order Cells in Vertebrate Retina University of Washington/Physiology and Biophysics Seattle, Washington	5 R01 EY02048-05	09/01/77- 08/31/85	10	33,796	11,176	44,972
DIDDIE, KENNETH R Branch Vein Occlusion Collaborative Study University of Southern California/Ophthalmology Los Angeles, California	5 R10 EY02471-03	07/01/78- 06/30/85	1	46,213	21,428	67,641
DIDDIE, KENNETH R Pathogenesis of Experimental Periretinal Proliferation University of Southern California/Ophthalmology Los Angeles, California	5 R23 EY02849-02	07/01/79- 03/31/82	6	0	0	0
DONOSO, LARRY A Retinoblastoma Tumor-Associated Antigens Wills Eye Hospital and Research Institute/Clinical Research Philadelphia, Pennsylvania	1 R23 EY03834-01	09/01/81- 08/31/84	3	37,500	25,838	63,338
DOWLING, JOHN E Anatomical Organization of the Visual System Harvard University/Biology Cambridge, Massachusetts	5 R01 EY00811-10	12/01/76- 11/30/81	10	43,668	21,397	65,065
DOWLING, JOHN E Functional Organization of Vertebrate Visual Systems Harvard University/Biology Cambridge, Massachusetts	5 R01 EY00824-11	06/01/79- 05/31/84	10	49,107	24,256	73,363
DOWLING, JOHN E Physiology of Photoreceptors of the Retina Harvard University/Biology Cambridge, Massachusetts	5 R01 EY02418-03	04/01/78- 03/31/81	9	0	0	0
DOWNER, NANCY W Domains of Structure and Function in Rhodopsin University of Arizona/University Department of Biochemistry Tucson, Arizona	5 R01 EY03105-03	07/01/79- 06/30/82	9	42,978	19,185	62,163
DRATZ, EDWARD A The Structure of Rhodopsin and the Rod Disk Membrane University of California, Santa Cruz/Chemistry Santa Cruz, California	5 R01 EY00175-12	05/01/79- 04/30/82	9	60,945	18,915	79,860
DRATZ, EDWARD A Antioxidants and Retina-Pigment Epithelium Function University of California, Santa Cruz/Chemistry Santa Cruz, California	3 R01 EY01521-06S1	07/01/78- 06/30/82	8	7,939	2,461	10,400
DRUM, BRUCE A Roles of Tonic and Phasic Neural Systems in Vision George Washington University/Ophthalmology Washington, D.C.	5 R01 EY01672-06	04/01/79- 03/31/82	10	53,720	24,577	78,297
EBREY, THOMAS G Mechanism of Visual Excitation University of Illinois, Urbana-Champaign/Physiology and Biophysics Urbana, Illinois	5 R01 EY01323-09	06/01/75- 05/31/85	9	88,773	34,724	123,497

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
EDWARDS, ROSS B Studies of Pigment Epithelium in Vitro Phagocytosis Harvard University/Ophthalmology Boston, Massachusetts	5 R01 EY02028-05	08/01/77–07/31/83	4	82,199	45,599	127,798
ELDRED, WILLIAM D Ultrastructural Study of Peptidergic Retinal Neurons State University of New York, Stony Brook/Neurobiology and Behavior Stony Brook, New York	1 R23 EY03801-01	08/01/81–07/31/84	10	35,705	14,843	50,548
ENGERMAN, RONALD L Study of Diabetic Retinopathy University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	5 R01 EY00300-16	12/01/77–11/30/82	1	181,149	79,426	260,575
ENOCH, JAY M The Etiology of Reduced Visual Function University of California, Berkeley/Optometry Berkeley, California	5 R01 EY03674-02	07/01/80–11/30/82	13	168,881	48,304	217,185
ESSNER, EDWARD S Functions of Lysosomes in Retinal Pigment Epithelium Wayne State University/Ophthalmology Detroit, Michigan	2 R01 EY01889-04A1	02/01/77–05/31/84	8	52,967	18,772	71,739
ESSNER, EDWARD S Structure and Permeability of the Choriocapillaris Wayne State University/Ophthalmology Detroit, Michigan	5 R01 EY03418-02	07/01/80–06/30/83	1	36,675	12,530	49,205
FAGER, ROGER S Preparation and Characterization of Cone Pigments University of Virginia, Charlottesville/Physiology Charlottesville, Virginia	5 R01 EY01505-07	07/01/77–06/30/85	9	80,837	34,355	115,192
FAIN, GORDON L Physiology of Photoreceptors University of California, Los Angeles/Jules Stein Eye Institute Los Angeles, California	5 R01 EY01844-05	02/01/77–01/31/85	9	82,073	25,443	107,516
FAIN, GORDON L Mechanism of Visual Adaptation University of California, Los Angeles/Jules Stein Eye Institute Los Angeles, California	5 R01 EY02728-03	12/01/78–11/30/82	9	52,053	16,564	68,617
FAMIGLIETTI, EDWARD V, JR Neural Architecture of Vertebrate Retina Wayne State University/Anatomy Detroit, Michigan	1 R01 EY03547-01	12/01/80–11/30/83	10	83,950	11,152	95,102
FARBER, DEBORA A Cyclic Nucleotides in Cone Metabolism and Disease University of California, Los Angeles/Jules Stein Eye Institute Los Angeles, California	2 R01 EY02651-04	08/01/78–07/31/86	4	54,818	9,241	64,059
FEENEY, LYNETTE Synthesis and Phagocytosis in Ocular Neuroepithelia University of Missouri, Columbia/Ophthalmology Columbia, Missouri	5 R01 EY03274-03	05/01/79–04/30/82	8	71,521	14,246	85,767

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
FEENEY, LYNETTE Ocular Pathology in Melanomatous Swine University of Missouri, Columbia/Ophthalmology Columbia, Missouri	1 R01 EY03680-01	05/01/81- 04/30/84	3	56,652	8,745	65,397
FEIN, ALAN Mechanisms of Vision Marine Biological Laboratory/Laboratory of Sensory Physiology Woods Hole, Massachusetts	5 R01 EY01362-07	06/01/77- 05/31/85	9	73,100	22,650	95,750
FEIN, ALAN Mechanisms of Visual Excitation Marine Biological Laboratory/Laboratory of Sensory Physiology Woods Hole, Massachusetts	1 R01 EY03793-01	09/01/81- 08/31/84	9	57,780	24,900	82,680
FEKE, GILBERT T Human Retinal Blood Flow and Laser Velocimetry Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY01303-06	01/01/78- 12/31/80	1	0	0	0
FERRELL, ROBERT E Genetic Studies of Retinoblastoma and the RB-1 Locus University of Texas Health Sciences Center, Houston/Center for Demographic and Population Genetics Houston, Texas	5 R01 EY03430-02	07/01/80- 06/30/82	3	31,309	11,897	43,206
FERRENDELLI, JAMES A Biochemistry and Pharmacology of the Retina Washington University/Pharmacology St. Louis, Missouri	2 R01 EY02294-04	02/01/78- 01/31/86	9	114,256	60,399	174,655
FINE, BEN S Foveomacular Aging in the Rhesus Monkey American Registry of Pathology Washington, D.C.	5 R01 EY03060-03	09/01/79- 08/31/84	5	78,811	27,070	105,881
FINE, STUART L Macular Photocoagulation Study: Reading Center Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R10 EY02546-03	01/01/79- 12/31/83	5	160,439	44,923	205,362
FINE, STUART L Macular Photocoagulation Study Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R10 EY02556-03	01/01/79- 12/31/83	5	71,879	22,421	94,300
FINKELSTEIN, DANIEL Studies of Retinitis Pigmentosa Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY01791-06	07/01/79- 06/30/82	4	67,398	34,656	102,054
FINKELSTEIN, DANIEL Branch Vein Occlusion Collaborative Study: Coordinating Center Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R10 EY02466-03	07/01/78- 06/30/85	1	79,427	23,898	103,325
FINKELSTEIN, DANIEL Branch Vein Occlusion Collaborative Study Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R10 EY02469-03	07/01/78- 06/30/85	1	48,641	24,398	73,039

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
FISHER, STEVEN K The Developing and Adult Visual System University of California, Santa Barbara/Biological Sciences Santa Barbara, California	5 R01 EY00888-10	03/01/76-12/31/84	8	49,543	17,297	66,840
FLOOD, MARY T Cell Biology of Human Chorioretinal Epithelium in Vitro Columbia University/Ophthalmology New York, New York	1 R01 EY03854-01	08/01/81-07/31/84	4	67,969	42,567	110,536
FLOWER, ROBERT W Prostaglandins in Premature Infant Vascular Physiology Johns Hopkins University/Ophthalmology Baltimore, Maryland	2 R01 EY02482-04	08/01/78-07/31/84	1	85,846	44,342	130,188
FLYNN, JOHN T Retrolental Fibroplasia: Clinical and Research Aspects University of Miami/Ophthalmology Miami, Florida	1 R01 EY03513-01	06/08/81-05/31/84	1	240,415	183,314	423,729
FOOS, ROBERT Y Vitreoretinal Juncture University of California, Los Angeles/Pathology Los Angeles, California	5 R01 EY00725-10	05/01/78-04/30/83	6	53,159	15,923	69,082
FOSTER, KENNETH W Analysis of Rhodopsin-Like Photoreceptors in Algae Mount Sinai School of Medicine/Pharmacology New York, New York	1 R01 EY03760-01	08/01/81-07/31/84	9	79,584	21,026	100,610
FOWLKS, WILLIAM L Biochemical Studies of the Blood-Vitreous Body Barrier University of Minnesota, Minneapolis-St Paul/Ophthalmology Minneapolis, Minnesota	5 R01 EY01258-06	07/01/78-06/30/82	6	0	0	0
FRANK, ROBERT N Retinal Microvessels: Tissue Culture and Biochemistry Wayne State University/Ophthalmology Detroit, Michigan	5 R01 EY01857-06	09/30/76-09/29/84	1	60,529	36,388	96,917
FRANK, ROBERT N A Proposed Model for Diabetic Retinopathy Wayne State University/Ophthalmology Detroit, Michigan	5 R01 EY02566-04	09/01/78-08/31/82	1	38,951	19,517	58,468
FRATKIN, JONATHAN D Proliferation of Retinal Vascular Endothelium in Vitro University of Iowa/Pathology Iowa City, Iowa	5 R23 EY03488-02	07/01/80-06/30/83	1	8,099	3,800	11,899
FULTON, ANNE B Retinal and Visual Development in the First Year Children's Hospital Medical Center/Ophthalmology Boston, Massachusetts	5 R01 EY03211-02	09/30/80-09/29/83	10	86,412	51,127	137,539
FULTON, ANNE B The Relation of Visual Pigment and Sensitivity Children's Hospital Medical Center/Ophthalmology Boston, Massachusetts	1 R01 EY03880-01	08/01/81-07/31/84	4	29,810	16,107	45,917

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
FUNG, BERNARD K Phosphodiesterase and GTPase Activation in Retinal Rods University of Rochester/Radiation Biology and Biophysics Rochester, New York	1 R01 EY03566-01	12/01/80-11/30/83	9	86,363	13,706	100,069
GAMEL, JOHN W Malignant Potential of Uveal Melanomas University of Louisville/Ophthalmology Louisville, Kentucky	5 R01 EY03148-03	07/01/79-06/30/82	3	20,166	12,356	32,522
GASS, DONALD M Macular Photocoagulation Study University of Miami/Ophthalmology Miami, Florida	5 R10 EY02549-03	01/01/79-12/31/83	5	43,323	22,528	65,851
GEISLER, WILSON S Visual Adaptation in Cone and Rod Systems University of Texas, Austin/Psychology Austin, Texas	5 R01 EY02688-03	12/01/78-11/30/81	10	23,175	8,615	31,790
GILLARY, HOWARD L Visual Mechanisms in a Regenerating Gastropod Retina University of Hawaii, Manoa/Bekesy Lab of Neurobiology Honolulu, Hawaii	5 R01 EY01531-05	07/01/78-06/30/81	9	0	0	0
GITTER, KURT A Macular Photocoagulation Study Touro Infirmary/Eye Research Laboratory New Orleans, Louisiana	5 R10 EY02564-03	01/01/79-12/31/83	5	34,702	17,004	51,706
GLASER, BERT M Ocular Angiogenic Factors: Bioassays and Biochemistry Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY03510-02	07/01/80-06/30/83	1	60,998	30,499	91,497
GLICKMAN, LAWRENCE T *Toxocara* Infection and Ocular Disease University of Pennsylvania/Clinical Studies Philadelphia, Pennsylvania	5 R01 EY03762-02	09/30/80-09/29/82	2	76,962	49,115	126,077
GOLDBERG, STEPHEN J Induction of Mammalian Retinal Regeneration University of Miami/Anatomy Miami, Florida	5 R01 EY01981-05	04/01/79-03/31/82	12	39,850	20,722	60,572
GOLDMAN, ARNOLD I Factors Controlling Disc Shedding and Phagocytosis Medical College of Wisconsin/Ophthalmology Milwaukee, Wisconsin	5 R01 EY02975-03	08/01/79-07/31/82	8	44,795	27,221	72,016
GOLDSMITH, TIMOTHY H Visual Mechanisms Yale University/Biology New Haven, Connecticut	5 R01 EY00222-21	04/01/79-03/31/84	9	58,163	35,102	93,265
GOLDSTEIN, GARY W Retinal Microvessels: Basis for Injury in Diabetes University of Michigan, Ann Arbor/Pediatrics and Communicable Disorders Ann Arbor, Michigan	5 R01 EY03772-03	09/30/80-09/29/83	1	88,359	56,311	144,670

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
GORMAN, ANTHONY L Ionic Basis of Visual Responses Boston University/Physiology Boston, Massachusetts	5 R01 EY01157-08	04/01/77-03/31/85	9	77,418	37,428	114,846
GOURAS, PETER Neurophysiology of Primate Vision Columbia University/Ophthalmology New York, New York	5 R01 EY02591-03	09/01/78-11/30/83	10	113,098	62,604	175,702
GREEN, DANIEL G Functional Organization of the Retina University of Michigan, Ann Arbor/Ophthalmology Ann Arbor, Michigan	5 R01 EY00379-14	09/01/74-08/31/84	10	53,297	35,731	89,028
GREEN, WILLIAM R Ocular Clinico-Pathologic Correlation Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY01684-03	06/04/76-05/31/81	4	0	0	0
GREGERSON, DALE S Nature and Role of Autoimmune Response in Uveitis Yale University/Ophthalmology and Visual Science New Haven, Connecticut	5 R01 EY02365-03	04/01/79-03/31/82	2	76,146	42,169	118,315
GREGERSON, DALE S Ocular Autoimmunity--Immunopathogenesis of EAL Yale University/Ophthalmology and Visual Science New Haven, Connecticut	1 R01 EY03660-01	05/01/81-04/30/84	2	53,126	24,984	78,110
HALL, MICHAEL O The Etiology of Retinal Degeneration University of California, Los Angeles/Jules Stein Eye Institute Los Angeles, California	5 R01 EY00046-12	03/01/78-11/30/82	4	98,923	31,426	130,349
HAM, WILLIAM T, JR Primate Ocular Photopathology of the Lens and Retina Virginia Commonwealth University/Biophysics Richmond, Virginia	2 R01 EY02324-04	05/01/78-07/31/84	9	81,352	43,732	125,084
HARGRAVE, PAUL A Rhodopsin Structure and Function Southern Illinois University, Carbondale/Chemistry and Biochemistry Carbondale, Illinois	5 R01 EY01275-08	02/01/77-01/31/83	9	67,076	27,062	94,138
HARGRAVE, PAUL A Rhodopsin Topography in the Rod Cell Disc Membrane Southern Illinois University, Carbondale/Chemistry and Biochemistry Carbondale, Illinois	5 R01 EY02875-03	09/29/78-11/30/81	9	51,728	23,154	74,882
HARTLINE, PETER H Photoresponse Kinetic: Effects of Adaptation Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY02491-03	08/01/77-06/30/81	10	0	0	0
HAYREH, SOHAN S Photocoagulation Studies on Retinal Vein Occlusion University of Iowa/Ophthalmology Iowa City, Iowa	5 R01 EY01151-07	09/30/80-09/29/85	1	63,595	17,254	80,849

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
HAYREH, SOHAN S Experimental Ocular Vascular Occlusive Disorders University of Iowa/Ophthalmology Iowa City, Iowa	5 R01 EY01576-07	06/01/75-05/31/85	1	69,664	26,472	96,136
HILLIS, ARGYE Macular Photocoagulation Study: Coordinating Center Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R10 EY02547-03	01/01/79-12/31/83	5	120,226	33,663	153,889
HINDS, JAMES W Serial Section Analysis of Developing Mouse Retina Boston University/Anatomy Boston, Massachusetts	5 R01 EY01398-05	07/01/77-11/30/80	10	0	0	0
HIROSE, TATSUO Simultaneous Macula VER and ERG in Fundus Diseases Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY01259-06	08/01/79-07/31/82	13	28,314	19,433	47,747
HOFFERT, JACK R Comparative Physiological Studies of Vertebrate Eyes Michigan State University/Physiology East Lansing, Michigan	5 R01 EY00009-18	12/01/78-11/30/81	10	37,294	16,146	53,440
HOLLYFIELD, JOE G Metabolism of the Retina in Vitro Baylor College of Medicine/Ophthalmology Houston, Texas	2 R01 EY02362-05	07/01/77-06/30/86	4	129,672	46,673	176,345
HOLLYFIELD, JOE G Development and Maintenance of Photoreceptor Cells Baylor College of Medicine/Ophthalmology Houston, Texas	5 R01 EY02363-05	07/01/77-02/28/82	4	104,408	38,193	142,601
HOLTZMAN, ERIC Formation, Circulation, and Fate of Neuronal Membranes Columbia University/Biological Sciences New York, New York	5 R01 EY03168-12	09/01/79-08/31/82	9	67,911	44,387	112,298
HONG, FELIX T Study of the Early Receptor Potential in Vision Wayne State University/Physiology Detroit, Michigan	5 R01 EY03334-02	07/08/80-06/30/83	9	36,544	10,605	47,149
HOOD, DONALD C Psychophysical Measures of Suprathreshold Responses Columbia University/Psychology New York, New York	5 R01 EY02115-05	08/01/77-07/31/83	10	53,130	31,657	84,787
HORWITZ, JOSEPH Retinol Delivery to Pigment Epithelium and Neural Retina University of California, Los Angeles/Jules Stein Eye Institute Los Angeles, California	5 R01 EY00704-10	06/01/76-05/31/81	8	0	0	0
HOWES, EDWARD L, JR Pathogenesis of Altered Ocular Vascular Permeability University of California, San Francisco/Pathology San Francisco, California	5 R01 EY00056-12	11/01/74-08/31/85	1	67,684	13,334	81,018

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
HU, FUNAN Stromal Pigment Cells of the Uvea in Culture Medical Research Foundation of Oregon/Cutaneous Biology Portland, Oregon	5 R01 EY02086-05	09/01/77–08/31/85	2	57,940	23,428	81,368
HUBBELL, WAYNE L Molecular Basis of Membrane Excitation University of California, Berkeley/Chemistry Berkeley, California	5 R01 EY00729-10	05/01/77–04/30/85	9	86,314	26,292	112,606
HUDSON, BRUCE S Electronic Structure of the Visual Polyenes University of Oregon/Chemistry Eugene, Oregon	2 R01 EY03182-03	03/01/79–02/29/84	9	78,548	17,674	96,222
HULTSCH, ERWIN Chemistry and Morphology of Vitreous Regeneration Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY02427-03	04/01/78–03/31/83	6	0	0	0
HULTSCH, ERWIN Pathophysiology of Vitreous Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY02895-03	12/01/78–11/30/82	6	47,860	27,738	75,598
JACOBSON, BERNARD J Role of Hyalocytes in the Vitreous Boston Biomedical Research Institute/Fine Structure Boston, Massachusetts	2 R01 EY00810-07A1	02/01/77–03/31/84	6	67,929	32,863	100,792
JAMPOL, LEE M A Longitudinal Study of Hypertensive Retinopathy University of Illinois Medical Center/Ophthalmology Chicago, Illinois	5 R01 EY02214-03	09/01/78–08/31/81	1	0	0	0
JOHNS, PAMELA R Neurogenesis and Synaptogenesis of Retinal Photoreceptor University of Michigan, Ann Arbor/Anatomy Ann Arbor, Michigan	7 R01 EY04177-01	09/01/81–08/31/82	9	39,799	23,083	62,882
JONES, DAN B Endogenous Fungal Endophthalmitis Baylor College of Medicine/Ophthalmology Houston, Texas	5 R01 EY02714-03	09/30/78–12/31/81	2	0	0	0
KALSOW, CAROLYN M Ocular Autoimmunity Involving Retina or Uvea University of Louisville/Ophthalmology Louisville, Kentucky	2 R01 EY01516-07	02/01/78–01/31/86	2	41,167	24,694	65,861
KAPLAN, HENRY J Cell Surface Analysis of Intraocular Lymphocytes Emory University/Ophthalmology Atlanta, Georgia	1 R01 EY03723-01	05/01/81–04/30/84	2	136,466	27,120	163,586
KAPLAN, MICHAEL W Optical Studies of Photoreceptor Function Good Samaritan Hospital and Medical Center/Ophthalmology Portland, Oregon	5 R01 EY01779-06	08/01/79–07/31/82	9	55,323	29,487	84,810

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
KARLIN, DAVID B Ocular Tissue Effects of CO_2 Laser Energy Cornell University Medical Center/Ophthalmology New York, New York	5 R01 EY02410-03	11/01/78- 06/30/82	1	30,597	24,856	55,453
KARPLUS, MARTIN Theoretical Studies of Biomolecules Harvard University/Chemistry Cambridge, Massachusetts	5 R01 EY00062-12	07/01/77- 06/30/82	9	58,505	34,385	92,890
KEAN, EDWARD L Glycolipid and Glycoprotein Metabolism in Eye Tissue Case Western Reserve University/Surgery Cleveland, Ohio	5 R01 EY00393-14	04/01/78- 03/31/83	9	103,618	60,098	163,716
KEAN, EDWARD L Role of Sugars in Phagocytosis of Rod Outer Segments Case Western Reserve University/Surgery Cleveland, Ohio	1 R01 EY03685-01	05/01/81- 04/30/86	8	82,475	37,106	119,581
KLEIN, MICHAEL L Macular Photocoagulation Study Good Samaritan Hospital and Medical Center/Ophthalmology Portland, Oregon	5 R10 EY02558-03	01/01/79- 12/31/83	5	33,708	17,966	51,674
KLEIN, RONALD Epidemiological Study of Diabetic Retinopathy University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	5 R01 EY03083-03	07/01/79- 06/30/84	1	134,848	58,830	193,678
KLEINSCHMIDT, JOCHEN Neurotransmitter Mechanisms in the Distal Retina State University of New York, Stony Brook/Neurobiology and Behavior Stony Brook, New York	5 R01 EY03499-02	07/15/80- 06/30/83	10	40,289	16,244	56,533
KLIGER, DAVID S Investigation of the Bleaching Stages of Rhodopsin University of California, Santa Cruz/Chemistry Santa Cruz, California	5 R01 EY00983-09	04/01/77- 03/31/83	9	38,587	11,962	50,549
KOBLASZ, ARTHUR Nonlinear Analysis of the Electroretinogram Georgia Institute of Technology/School of Engineering Science and Mechanics Atlanta, Georgia	5 R23 EY03022-02	11/01/78- 10/31/80	9	0	0	0
KOHLER, BRYAN E Spectroscopic Studies of Visual Pigments Wesleyan University/Chemistry Middletown, Connecticut	5 R01 EY01733-06	05/01/76- 04/30/85	9	58,617	19,334	77,951
KOLB, HELGA E Neural Circuitry of the Vertebrate Retina University of Utah/Physiology Salt Lake City, Utah	5 R01 EY03323-02	04/01/80- 03/31/85	10	63,685	29,932	93,617
KORENBROT, JUAN I Mechanism of Light-Transduction in Photoreceptors University of California, San Francisco/Physiology San Francisco, California	2 R01 EY01586-07	06/01/78- 05/31/85	9	101,888	22,397	124,285

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
KRETZER, FRANK L Retina: Ultrastructure of Photoreceptors Baylor College of Medicine/Ophthalmology Houston, Texas	2 R01 EY02607-04	09/01/78- 08/31/84	7	47,543	17,360	64,903
KROPF, ALLEN Photochemistry of the Visual Pigments Amherst College/Chemistry Amherst, Massachusetts	5 R01 EY00201-20	04/01/79- 06/30/82	9	42,893	19,412	62,305
L'ESPERANCE, FRANCIS A, JR Intraocular Tumor Vaporization by CO_2 Laser Radiation Columbia University/Ophthalmology New York, New York	1 R01 EY03076-01	09/30/79- 03/31/81	3	0	0	0
LA VAIL, MATTHEW M Cellular Mechanisms of Inherited Retinal Degeneration University of California, San Francisco/Anatomy San Francisco, California	5 R01 EY01919-06	07/01/78- 06/30/83	4	123,211	38,496	161,707
LAI, YIN-LOK Peripheral Retinal Degeneration in Fischer Rats Yale University/Health Science Resources New Haven, Connecticut	5 R01 EY02542-03	09/01/78- 08/31/81	4	0	0	0
LAI, YIN-LOK Studies of Subretinal and Choroidal Spaces St. Louis University/Internal Medicine St. Louis, Missouri	1 R01 EY04178-01	09/30/81- 09/29/84	6	74,569	27,632	102,201
LAM, DOMINIC M Neurotransmitters in the Visual System Baylor College of Medicine/Ophthalmology Houston, Texas	5 R01 EY02423-05	09/01/77- 08/31/82	10	43,781	15,761	59,542
LAM, DOMINIC M Development and Regeneration of the Vertebrate Retina Baylor College of Medicine/Ophthalmology Houston, Texas	5 R01 EY02608-04	09/01/78- 08/31/83	12	54,653	21,162	75,815
LAND, PETER W Ganglion Cells in Rat Retina Medical University of South Carolina/Anatomy Charleston, South Carolina	5 R01 EY03447-02	07/01/80- 06/30/83	10	35,018	8,748	43,766
LATIES, ALAN M Autonomic Innervation of the Eye Presbyterian-University of Pennsylvania Medical Center Ophthalmology Philadelphia, Pennsylvania	5 R01 EY01194-08	10/01/75- 05/31/81	10	0	0	0
LATIES, ALAN M The Eye in Experimental Diabetes: Retinal Changes University of Pennsylvania/Ophthalmology Philadelphia, Pennsylvania	5 R01 EY03444-02	07/01/80- 06/30/84	1	93,751	64,283	158,034
LEEPER, HAROLD F Intracellular Recording from Mammalian Photoreceptors University of California, San Francisco/Physiology San Francisco, California	5 R01 EY02962-03	04/01/79- 03/31/82	9	34,279	10,636	44,915

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
LEURE-DU PREE, ALPHONSE E Retinal Zinc: Cellular Location and Visual Function Pennsylvania State University, Hershey Medical Center/ Anatomy Hershey, Pennsylvania	5 R01 EY01438-05	12/01/78- 05/31/82	8	0	0	0
LEVINE, MICHAEL W Rod and Cone Systems: Properties and Interactions University of Illinois, Chicago Circle/Psychology Chicago, Illinois	5 R01 EY01951-03	07/01/77- 12/31/80	9	0	0	0
LEWIS, AARON Laser Raman Spectroscopy of the Visual Processes Cornell University, Ithaca/Applied & Engineering Physics Ithaca, New York	5 R01 EY01377-06	09/01/77- 06/30/81	9	0	0	0
LIEBMAN, PAUL A Microphotometric Studies on Retinal Rods and Cones University of Pennsylvania/Anatomy Philadelphia, Pennsylvania	5 R01 EY00012-18	12/01/79- 11/30/84	9	132,168	94,914	227,082
LIOU, GREGORY I Binding Proteins for Retinoids in Ocular Tissues Baylor College of Medicine/Ophthalmology Houston, Texas	1 R23 EY03829-01	08/01/81- 07/31/84	8	35,833	12,900	48,733
LIPETZ, LEO E The Spectral Sensitivities of Turtle Photoreceptors Ohio State University/Division of Sensory Biophysics Columbus, Ohio	1 R01 EY03743-01	06/01/81- 05/31/83	9	24,552	10,312	34,864
LISMAN, JOHN E Mechanisms of Adaptation Brandeis University/Biology Waltham, Massachusetts	5 R01 EY01496-08	06/01/77- 05/31/82	9	70,918	42,911	113,829
LITMAN, BURTON J Disk Function: Rhodopsin Substructure and Environment University of Virginia, Charlottesville/Biochemistry Charlottesville, Virginia	5 R01 EY00548-10	07/01/77- 06/30/83	9	48,912	21,662	70,574
LIU, HSIAO-SU L Sustained-Release Chemotherapy for Ocular Malignancy Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY02917-03	09/01/78- 08/31/81	3	0	0	0
LIU, HSIAO-SU L Enucleation in the Management of Uveal Melanoma Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	1 R01 EY03609-01	02/01/81- 01/31/84	3	51,685	32,255	83,940
LIZZI, FREDERIC L Ultrasonic Evaluation of Ocular Tissues Riverside Research Institute/Biomedical Engineering Laboratory New York, New York	5 R01 EY01212-08	05/01/77- 04/30/84	3	117,250	73,367	190,617
LIZZI, FREDERIC L Study of Ultrasonically Induced Ocular Damage Riverside Research Institute/Biomedical Engineering Laboratory New York, New York	2 R01 EY01480-07	12/01/77- 06/30/84	3	151,761	93,216	244,977

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
LOLLEY, RICHARD N Maturation of Metabolism in Normal and Dystrophic Retina University of California, Los Angeles/Anatomy Los Angeles, California	5 R01 EY00395-13	02/01/78-01/31/83	4	49,087	9,670	58,757
MACHEMER, ROBERT Vitrectomy Through the Pars Plana Duke University/Ophthalmology Durham, North Carolina	5 R01 EY02903-04	08/01/78-05/31/82	6	103,692	51,246	154,938
MACLEOD, DONALD I Retinal Mechanisms in Vision University of California, San Diego/Psychology La Jolla, California	5 R01 EY01711-06	05/01/79-04/30/83	10	42,497	13,933	56,430
MACNICHOL, EDWARD F, JR Studies of Single Visual Receptor Cells Marine Biological Laboratory/Sensory Physiology Woods Hole, Massachusetts	5 R01 EY02399-04	08/01/78-07/31/83	9	109,413	54,282	163,695
MAKOUS, WALTER L Duplicity Theory and the Stiles-Crawford Effect University of Rochester/Center for Visual Science Rochester, New York	5 R01 EY03594-02	04/01/80-07/31/83	10	38,798	28,711	67,509
MARC, ROBERT E Structural Neurochemistry of Retinal Circuits University of Texas Health Sciences Center, Houston/Sensory Sciences Center Houston, Texas	2 R01 EY02576-04	01/01/78-12/31/85	10	49,430	19,456	68,886
MARCH, WAYNE F Macular Photocoagulation Study University of Oklahoma Health Sciences Center/Ophthalmology Oklahoma City, Oklahoma	5 R10 EY03281-02	09/30/79-12/31/83	5	29,429	7,946	37,375
MARGHERIO, RAYMOND R Macular Photocoagulation Study William Beaumont Hospital/Ophthalmology Royal Oak, Michigan	5 R10 EY02563-02	09/30/79-12/31/83	5	30,512	8,439	38,951
MARMOR, MICHAEL F Interaction Between Retina and Pigment Epithelium Stanford University/Surgery Stanford, California	2 R01 EY01678-07	08/01/81-07/31/84	8	97,227	57,535	154,762
MASLAND, RICHARD H Neurotransmission in Mammalian Retina Massachusetts General Hospital/Neurosurgical Service Boston, Massachusetts	5 R01 EY01075-08	04/01/77-03/31/82	10	40,801	9,371	50,172
MASSOF, ROBERT W Studies of Visual Function in the Peripheral Retina Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY02952-03	04/01/79-03/31/83	10	32,648	17,630	50,278
MATEESCU, GHEORGHE D NMR Spectral Studies of Visual Pigments Case Western Reserve University/Chemistry Cleveland, Ohio	2 R01 EY02998-03	07/01/79-06/30/84	9	75,390	30,640	106,030

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
MATHIES, RICHARD A Raman Investigations of the Molecular Basis of Vision University of California, Berkeley/Chemistry Berkeley, California	5 R01 EY02051-05	09/01/77-08/31/83	9	42,811	10,995	53,806
MATTHEWS, GARY G Cellular Neurophysiology of the Vertebrate Retina State University of New York, Stony Brook/Neurobiology and Behavior Stony Brook, New York	1 R01 EY03821-01	08/01/81-07/31/84	9	36,459	11,471	47,930
MAUMENEE, IRENE H Genetics in Ophthalmology Johns Hopkins University/Ophthalmology Baltimore, Maryland	3 R01 EY01773-05S1	06/01/76-10/31/81	4	12,000	7,080	19,080
MC CONNELL, DAVID G Studies of Retinal Rod Cyclic GMP Phosphodiesterase Michigan State University/Biomechanics East Lansing, Michigan	5 R01 EY01574-03	09/30/76-09/30/81	9	0	0	0
MC CORMICK, BRUCE H Image Processing for Clinical Ophthalmoscopy University of Illinois, Chicago Circle/Information Engineering Chicago, Illinois	5 R01 EY01261-07	01/01/79-03/31/82	13	240,465	145,652	386,117
MC LAUGHLIN, BARBARA J Photoreceptor Synatogenesis in the Retina University of Tennessee Center for Health Science/Anatomy Memphis, Tennessee	5 R01 EY02708-03	09/29/78-11/30/81	9	37,590	14,135	51,725
MC LAUGHLIN, BARBARA J Inherited Retinal Degeneration University of Tennessee Center for Health Science/Anatomy Memphis, Tennessee	5 R01 EY02853-03	12/01/78-11/30/81	4	57,012	20,967	77,979
MC MEEL, J WALLACE Study of Retinal Circulation in Diabetes Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY02164-04	05/01/78-04/30/83	1	50,061	37,870	87,931
MC REYNOLDS, JOHN S Functional Organization of the Retina University of Michigan, Ann Arbor/Physiology Ann Arbor, Michigan	5 R01 EY01653-06	05/01/79-11/30/82	10	43,011	26,367	69,378
MEINERTZHAGEN, IAN A Visual System Development and Synaptogenesis Dalhousie University/Psychology Halifax, Canada	1 R01 EY03592-01	02/01/81-01/31/84	10	30,255	0	30,255
MEYERS, ROBERTA L Pathogenesis of Experimental Allergic Uveitis University of California, Los Angeles/Ophthalmology Los Angeles, California	5 R01 EY01309-07	04/01/77-11/30/82	2	0	0	0
MILLER, ROBERT F Cell Communication in the Vertebrate Retina Washington University/Ophthalmology St. Louis, Missouri	2 R01 EY03014-04	09/30/78-02/29/84	10	89,856	39,475	129,331

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MILLER, SHELDON S Homeostatic Ability of the Retinal Pigment Epithelium University of California, Berkeley/Physiological Optics Berkeley, California	2 R01 EY02205-04	02/01/78–08/31/86	8	74,328	20,831	95,159
MILLER, WILLIAM H Photoreceptor Function Yale University/Ophthalmology and Visual Science New Haven, Connecticut	5 R01 EY03196-02	09/30/79–01/31/85	9	57,281	31,505	88,786
MINKE, BARUCH Intermediate Steps of Phototransduction Purdue University, West Lafayette/Biological Sciences West Lafayette, Indiana	1 R01 EY03456-01	09/01/80–08/31/81	9	0	0	0
MINKE, BARUCH Genetic Dissection of Phototransduction Hebrew University of Jerusalem/Physiology Jerusalem, Israel	1 R01 EY03529-01	09/01/81–08/31/84	9	69,080	0	69,080
MOLDAY, ROBERT S A Study of Retinal Photoreceptor Membrane Proteins University of British Columbia/Biochmistry Vancouver, Canada	2 R01 EY02422-04	04/01/78–03/31/84	9	37,600	0	37,600
MONTAL, S MAURICIO Rhodopsin in Bilayer Membranes and Visual Excitation University of California, San Diego/Physics La Jolla, California	2 R01 EY02084-04A1	04/01/78–06/30/86	9	85,371	23,420	108,791
MUKAI, NORITSUGU Pathogenesis of Diabetic Retinopathy Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY02062-03	01/01/78–12/31/80	1	0	0	0
MUKAI, NORITSUGU Retinal Tumor Cell Lines in Two Animal Models Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY03171-03	04/01/79–03/31/82	3	60,344	38,210	98,554
MURPHREE, A LINN Biochemical and Cytogenetic Markers in Retinoblastoma Children's Hospital of Los Angeles/Surgery Los Angeles, California	5 R01 EY02715-03	01/01/79–12/31/81	3	39,495	20,196	59,691
NAKANISHI, KOJI Chemical and Bioorganic Studies of Visual Pigments Columbia University/Chemistry New York, New York	5 R01 EY01253-08	03/01/79–02/28/82	9	50,326	27,176	77,502
NOELL, WERNER K Retinal Function in Advanced Hereditary Degeneration State University of New York, Buffalo/Physiology Buffalo, New York	5 R01 EY02670-03	11/01/78–10/31/81	4	56,389	24,046	80,435
NOLTE, JOHN F Pineal Photoreceptors University of Colorado Health Sciences Center/Anatomy Denver, Colorado	5 R01 EY02083-03	09/01/77–03/31/82	9	0	0	0

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
NORMANN, RICHARD A Electrophysiological Studies of the Vertebrate Retina University of Utah/Surgery Salt Lake City, Utah	1 R01 EY03748-01	05/01/81-04/30/84	9	23,165	10,418	33,583
O'BRYAN, PAUL M, JR Early Receptor Potentials in Single Vertebrate Cones Boston University/Physiology Boston, Massachusetts	5 R01 EY01812-05	05/01/76-11/30/82	9	61,420	29,926	91,346
O'CONNOR, G RICHARD Study of Ocular Toxoplasmosis University of California, San Francisco/Proctor Foundation for Research in Ophthalmology San Francisco, California	5 R01 EY01204-08	11/01/76-10/31/81	2	135,599	42,036	177,635
O'DONNELL, JAMES J Animal Models of Retinal Degeneration in Vitro University of California, San Francisco/Ophthalmology San Francisco, California	5 R01 EY01786-06	09/30/76-09/29/82	4	69,198	22,310	91,508
O'DONNELL, JAMES J Study Gyrate Atrophy of the Retina University of California, San Francisco/Ophthalmology San Francisco, California	5 R01 EY02706-03	12/01/78-11/30/82	4	75,747	25,538	101,285
O'STEEN, WENDALL K Reproductive Hormones and Retinal Degeneration Wake Forest University/Anatomy Winston-Salem, North Carolina	2 R01 EY02359-05	06/01/78-05/31/86	4	53,955	17,805	71,760
OBERDORFER, MICHAEL D Eye Development and Abnormal Visual Pathways University of Texas Health Sciences Center, Houston/ Neurobiology and Anatomy Houston, Texas	5 R01 EY02926-03	04/01/79-03/31/83	10	20,112	8,094	28,206
OGDEN, THOMAS E A Study of Structure and Function of Retinal Neurons Estelle Doheny Eye Foundation Los Angeles, California	5 R01 EY01671-05	04/01/78-03/31/81	10	0	0	0
OGDEN, THOMAS E Primate Retina Nerve Fiber Layer Estelle Doheny Eye Foundation Los Angeles, California	5 R01 EY02637-03	07/01/79-06/30/82	10	31,900	25,937	57,837
OH, JANG O Recurrent Herpes Simplex Uveitis University of California, San Francisco/Proctor Foundation for Research in Ophthalmology San Francisco, California	5 R01 EY00964-07	05/01/80-04/30/85	2	84,674	26,025	110,699
OKAMURA, WILLIAM H Studies on the Retinoids and Vinyl Allene Chemistry University of California, Riverside/Chemistry Riverside, California	5 R01 EY02452-04	04/01/78-03/31/83	9	43,967	13,475	57,442
OLSON, JAMES A The Enzymatic Isomerization of Vitamin A in the Eye Iowa State University of Science and Technology/ Biochemistry and Biophysics Ames, Iowa	1 R01 EY03677-01	05/01/81-04/30/84	9	35,310	9,625	44,935

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
ORGANISCIAK, DANIEL T Environmental Light and Retinal Membrane Development Wright State University/Biological Chemistry Dayton, Ohio	5 R01 EY01959–05	04/01/77–03/31/83	4	47,337	23,384	70,721
ORTH, DAVID H Branch Vein Occlusion Collaborative Study University of Illinois Medical Center/Ophthalmology Chicago, Illinois	5 R10 EY02467–03	07/01/78–06/30/85	1	39,013	22,900	61,913
ORTH, DAVID H Macular Photocoagulation Study Ingalls Memorial Hospital/Retinal Vascular Services Harvey, Illinois	5 R10 EY03288–02	09/30/79–12/31/83	5	33,146	11,461	44,607
OSTLER, H BRUCE Diagnosis of Bacterial Endophthalmitis University of California, San Francisco/Proctor Foundation for Research in Ophthalmology San Francisco, California	5 R01 EY01922–05	05/01/77–04/30/82	2	71,348	22,118	93,466
OSTROY, SANFORD E Related Molecular and Physiological Events in Vision Purdue University, West Lafayette/Biological Sciences West Lafayette, Indiana	5 R01 EY00413–13	05/01/77–11/30/81	9	53,075	26,065	79,140
OWEN, JEFFREY D Ca^{2+} Electrode Measurements in *Limulus* Photoreceptors University of Utah/Physiology Salt Lake City, Utah	5 R01 EY02402–03	09/01/78–03/31/82	9	0	0	0
OYSTER, CLYDE W Neural Interactions in Retina and Visual Pathways University of Alabama, Birmingham/Physiological Optics Birmingham, Alabama	2 R01 EY02207–04	09/01/78–08/31/84	10	60,397	16,621	77,018
PAK, WILLIAM L Genetic Dissection of the Phototransduction Process Purdue University, West Lafayette/Biological Sciences West Lafayette, Indiana	5 R01 EY00033–12	10/01/74–11/30/84	9	89,666	48,950	138,616
PANESSA-WARREN, BARBARA Diffusible and Bound Calcium in Retina and Choroid State University of New York, Stony Brook/Anatomical Sciences Stony Brook, New York	1 R01 EY03422–01	12/01/80–01/31/84	10	58,404	22,626	81,030
PAPERMASTER, DAVID S Membrane Biosynthesis in Normal and Dystrophic Retina Yale University/Pathology New Haven, Connecticut	5 R01 EY00845–08	09/01/78–09/29/83	4	66,420	38,609	105,029
PAPERMASTER, DAVID S Immunocytochemistry of Membrane Biosynthesis in Eye Yale University/Pathology New Haven, Connecticut	5 R01 EY03239–03	09/30/79–09/29/84	9	76,586	46,401	122,987
PARVER, LEONARD M The Role of Light-Generated Heat in Macular Disease Georgetown University/Ophthalmology Washington, D.C.	1 R01 EY03507–01	08/01/81–07/31/84	5	93,610	29,814	123,424

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
PASANTES-MORALES, HERMINIA Taurine and Ionic Fluxes in Retina National Autonomous University of Mexico/Neurosciences Mexico City, Mexico	2 R01 EY02540-03	02/01/81-01/31/83	9	13,600	0	13,600
PATZ, ARNALL Retina and Retinal Vessels Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY00205-21	05/01/77-04/30/82	1	102,277	62,447	164,724
PATZ, ARNALL Diabetic Retinopathy: Inhibition of Neovascularization Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY02603-03	09/01/78-08/31/81	1	0	0	0
PAULSEN, ELSA P Retinal/Renal Capillary Leakage in Childhood Diabetes University of Virginia, Charlottesville/Pediatrics Charlottesville, Virginia	5 R01 EY03187-03	09/30/79-09/29/82	1	64,220	29,366	93,586
PAUTLER, EUGENE L Sugar Transport by Mammalian Blood-Retinal Barriers Colorado State University/Physiology and Biophysics Fort Collins, Colorado	5 R01 EY01643-06	06/01/79-05/31/82	1	46,041	17,427	63,468
PECZON, BENIGNO D Ocular Basement Membranes in Diabetic Retinopathy Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY01564-06	06/01/78-05/31/82	1	0	0	0
PEPPERBERG, DAVID R Visual Pigment and Photoreceptor Adaptation Purdue University, West Lafayette/Biological Sciences West Lafayette, Indiana	5 R01 EY02103-05	09/01/77-08/31/85	9	39,082	15,949	55,031
PERLMAN, IDO Mechanisms of Visual Adaptation in the Vertebrate Eye Technion-Israel Institute of Technology/Physiology Haifa, Israel	5 R01 EY03423-02	12/01/79-11/30/82	10	22,550	0	22,550
PETERS, KEVIN S Picosecond Study of the Visual Protein Rhodopsin Harvard University/Chemistry Cambridge, Massachusetts	5 R01 EY02922-03	07/01/79-06/30/82	9	32,219	13,484	45,703
PHELPS, DALE L Tocopherol Protection in Retinopathy of Prematurity University of California, Los Angeles/Pediatrics Los Angeles, California	5 R01 EY01939-03	09/30/80-09/29/84	1	97,353	30,179	127,532
PHELPS, DALE L Oxygen Therapy of Oxygen-Induced Retinopathy University of California, Los Angeles/Pediatrics Los Angeles, California	5 R01 EY03473-02	07/01/80-06/30/83	1	59,571	18,467	78,038
PINO, RICHARD M Cellular Aspects of Permeability in the Posterior Uvea Louisiana State University Medical Center, New Orleans/Anatomy New Orleans, Louisiana	1 R01 EY03776-01	09/01/81-08/31/85	1	50,321	8,291	58,612

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
PINTO, LAWRENCE H Intermediate Processes in Photoreceptors Purdue University, West Lafayette/Biological Sciences West Lafayette, Indiana	5 R01 EY01221-08	04/01/77–03/31/82	9	60,328	29,596	89,924
POMERANTZEFF, OLEG Optics Applied to Diagnosis and Treatment of Eye Disease Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY01975-05	08/01/77–07/31/83	13	87,644	70,238	157,882
POMERANTZEFF, OLEG Evaluate Krypton Laser in Photocoagulation Therapy Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R01 EY02725-03	09/29/78–09/28/81	1	0	0	0
POTTS, ALBERT M The Action of Drugs and Poisons on the Eye University of Louisville/Ophthalmology Louisville, Kentucky	3 R01 EY01591-03S1	06/30/76–09/30/81	7	16,468	9,716	26,184
POTTS, ALBERT M Pathophysiological Studies on Optic Nerve University of Louisville/Ophthalmology Louisville, Kentucky	5 R01 EY01704-05	06/30/75–02/28/81	7	0	0	0
POURCHO, ROBERTA G Retinal Neurotransmitters and Synaptic Circuitry Wayne State University/Anatomy Detroit, Michigan	5 R01 EY02267-03	12/01/78–11/30/81	10	33,967	14,926	48,893
PRICE, JAMES Eye Histamine: Tissue Levels in Albinos Texas Tech University/Ophthalmology and Visual Sciences Lubbock, Texas	5 R01 EY02157-02	12/01/78–11/30/80	2	0	0	0
PROENZA, LUIS M Physiology of Retinal Cells in Vision University of Georgia/Zoology Athens, Georgia	2 R01 EY03526-02	01/01/80–12/31/85	11	28,085	10,307	38,392
PUGH, EDWARD N, JR Analysis of the Mechanisms of Photoreceptor Kinetics University of Pennsylvania/Psychology Philadelphia, Pennsylvania	5 R01 EY02660-03	08/01/78–07/31/82	9	0	0	0
PURNELL, EDWARD W Study of Eye Physiology and Disease by Ultrasound Case Western Reserve University/Surgery Cleveland, Ohio	5 R01 EY00224-18	03/01/78–11/30/80	3	0	0	0
PURNELL, EDWARD W Ultrasonic Microbiometry of the Ocular Coats Case Western Reserve University/Surgery Cleveland, Ohio	1 R01 EY03678-01	05/01/81–04/30/84	1	84,773	43,302	128,075
PURPLE, RICHARD L Studies on Integrative Mechanisms of Neurons University of Minnesota, Minneapolis-St Paul/Physiology Minneapolis, Minnesota	5 R01 EY00293-14	06/01/75–05/31/81	10	0	0	0

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RADTKE, NORMAN D Animal Model for Massive Periretinal Proliferation University of Louisville/Ophthalmology Louisville, Kentucky	1 R01 EY03874-01	08/01/81-07/31/84	6	48,915	19,954	68,869
RAMSAY, ROBERT C Ocular Status of Diabetic Renal Transplant Recipients University of Minnesota, Minneapolis-St Paul/Ophthalmology Minneapolis, Minnesota	5 R01 EY02204-04	01/01/78-12/31/82	1	31,202	11,491	42,693
RAMSAY, ROBERT C Involutional Diabetic Retinopathy Study University of Minnesota, Minneapolis-St Paul/Ophthalmology Minneapolis, Minnesota	5 R01 EY02316-05	08/01/77-07/31/82	1	23,507	9,564	33,071
RAMSAY, ROBERT C HLA and Genetic Studies in Diabetic Retinopathy University of Minnesota, Minneapolis-St Paul/Ophthalmology Minneapolis, Minnesota	5 R01 EY02455-03	07/01/78-06/30/81	1	0	0	0
RAND, LAWRENCE I Case Control Study of Diabetic Retinopathy Joslin Diabetes Center/Elliot P Joslin Research Laboratory Boston, Massachusetts	5 R01 EY02636-04	09/01/78-08/31/82	1	63,203	35,411	98,614
RANDO, ROBERT R The Neuropharmacology of the Retina Harvard University/Pharmacology Boston, Massachusetts	1 R01 EY03624-01	12/01/80-11/30/83	10	49,875	54,630	104,505
RAVIOLA, ELIO Freeze-Fracture Studies of the Retina Harvard University/Anatomy Boston, Massachusetts	5 R01 EY01344-07	06/01/77-05/31/82	9	69,211	83,053	152,264
RAVIOLA, ELIO Cell Communication in Retina and Lens Harvard University/Anatomy Boston, Massachusetts	5 R01 EY03011-03	04/01/79-03/31/82	9	28,377	38,291	66,668
REDBURN, DIANNA A Biochemical Analysis of Transmitter Agents in Retina University of Texas Health Sciences Center, Houston/ Neurobiology and Anatomy Houston, Texas	5 R01 EY01655-06	06/30/79-06/29/82	10	65,736	25,434	91,170
REFOJO, MIGUEL F Synthetic Hydrophilic Polymers for Eye Surgery Eye Research Institute of Retina Foundation/Polymer Chemistry Laboratory Boston, Massachusetts	5 R01 EY00327-16	01/01/78-12/31/82	6	74,300	52,737	127,037
REID, TED W Role of Glutamine Transferase in the Retina Yale University/Ophthalmology and Visual Science New Haven, Connecticut	5 R01 EY01656-06	05/01/79-04/30/82	10	46,953	26,055	73,008
REID, TED W Growth and Metabolism of Retinal Cells Yale University/Ophthalmology and Visual Science New Haven, Connecticut	5 R01 EY02709-03	12/01/78-11/30/82	3	63,681	35,025	98,706

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
REIF-LEHRER, LIANE Biochemical Control in Normal and Diseased Retinas Eye Research Institute of Retina Foundation/Department of Ophthalmology Boston, Massachusetts	5 R01 EY02171-05	04/01/79–03/31/84	10	104,946	62,098	167,044
REYNOLDS, GEORGE T X-Ray Diffraction Studies of Vertebrate Eye Membrane Princeton University/Physics Princeton, New Jersey	5 R01 EY02679-03	12/01/78–11/30/81	9	43,129	27,054	70,183
RHODES, ROY H Aspects of Mouse Vitreous Development and Pathology University of Tennessee Center for Health Science/Pathology Memphis, Tennessee	1 R01 EY03828-01	08/01/81–07/31/84	6	28,434	6,854	35,288
RIPPS, HARRIS Visual Adaptation in the Vertebrate Retina New York University/Ophthalmology New York, New York	2 R01 EY00285-17	03/01/76–12/31/85	10	137,246	60,001	197,247
RIVA, CHARLES E Flow and Diffusion of Fluorescein in the Ocular Fundus Presbyterian--University of Pennsylvania Medical Center/Ophthalmology Philadelphia, Pennsylvania	5 R01 EY03242-03	03/01/79–03/31/83	13	51,644	27,601	79,245
ROBERTSON, DENNIS M Chorioretinopathy Mayo Foundation/Ophthalmology Rochester, Minnesota	5 R01 EY01709-04	06/30/76–01/31/81	5	0	0	0
ROTHSCHILD, KENNETH J Biophysical Study of Oriented Photoreceptor Membrane Boston University/Physiology Boston, Massachusetts	5 R01 EY02142-03	08/01/77–07/31/81	9	0	0	0
RUBINSON, KALMAN Retinal Development and Transformation of the Lamprey New York University/Physiology and Biophysics New York, New York	5 R01 EY02288-03	09/01/78–08/31/82	10	0	0	0
RYAN, STEPHEN J An Experimental Approach to Maculopathy University of Southern California/Ophthalmology Los Angeles, California	5 R01 EY01545-06	09/30/76–09/29/82	5	56,583	32,698	89,281
RYAN, STEPHEN J Pars Plana Vitrectomy in Penetrating Ocular Trauma University of Southern California/Ophthalmology Los Angeles, California	5 R01 EY02061-04	02/01/78–02/28/84	6	130,585	40,998	171,583
RYAN, STEPHEN J Bruch's Membrane/Retinal Pigment Epithelial Studies University of Southern California/Ophthalmology Los Angeles, California	5 R01 EY02287-03	06/01/78–05/31/81	8	0	0	0
SAARI, JOHN C Retinal Metabolism University of Washington/Ophthalmology Seattle, Washington	5 R01 EY00343-16	06/01/79–05/31/84	9	41,939	15,904	57,843

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
SAARI, JOHN C Biochemistry of the Retina and Pigment Epithelium University of Washington/Ophthalmology Seattle, Washington	5 R01 EY02317-05	04/01/77- 03/31/85	8	77,085	26,039	103,124
SARTHY, VIJAY P Glial Function of the Vertebrate Retina University of Washington/Ophthalmology Seattle, Washington	5 R01 EY03523-03	01/01/80- 07/31/82	11	71,920	19,740	91,660
SARTHY, VIJAY P Neurotransmitters in the Visual System University of Washington/Ophthalmology Seattle, Washington	1 R01 EY03664-01	05/01/81- 04/30/84	10	62,152	15,846	77,998
SCHAEFFER, JAMES M Biochemical Characterization of Isolated Retinal Cells University of California, San Diego/Reproductive Medicine La Jolla, California	5 R01 EY03154-03	07/01/79- 06/30/82	10	49,656	16,121	65,777
SCHMIDT, SUSAN Y Biochemical Studies of Retina and Pigment Epithelium Harvard University/Ophthalmology Boston, Massachusetts	5 R01 EY01687-06	05/01/79- 04/30/84	4	55,405	35,942	91,347
SCHMIDT, SUSAN Y Metabolic Studies of Cultured Pigment Epithelium Massachusetts Eye and Ear Infirmary/Retinal Degenerations Boston, Massachusetts	1 R01 EY03815-01	08/01/81- 07/31/86	4	54,895	16,615	71,510
SCHOELLMANN, GUENTHER Molecular Aspects of the Photoreceptor Function Tulane University of Louisiana/Biochemistry New Orleans, Louisiana	5 R01 EY03350-02	07/01/80- 06/30/83	9	42,597	14,076	56,673
SCHWARTZ, ERIC A Development of Photoreceptors in a Vertebrate Eye University of Chicago/Pharmacological and Physiological Sciences Chicago, Illinois	3 R01 EY02440-03S1	04/01/78- 02/28/82	9	32,377	12,491	44,868
SCOTT, DAVID A Eye Development: Growth Cone Structure in *Drosophila* University of Rochester/Center for Brain Research Rochester, New York	5 R01 EY02475-03	09/01/78- 11/30/81	10	0	0	0
SERY, THEODORE W In Vitro and in Vivo Studies of Retinoblastoma Wills Eye Hospital and Research Institute/Microbiology Philadelphia, Pennsylvania	5 R01 EY02131-04	05/01/78- 04/30/82	3	52,008	35,834	87,842
SHEFFIELD, JOEL B Retinal Histogenesis Studies Temple University/Biology Philadelphia, Pennsylvania	5 R01 EY02625-03	08/01/78- 07/31/81	4	0	0	0
SHERMAN, WARREN V Light Response of the Purple Membrane of *H. halobium* Chicago State University/Physical Sciences Chicago, Illinois	2 R01 EY02219-04	02/01/78- 06/30/84	9	25,945	9,138	35,083

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
SHICHI, HITOSHI Retinal Photoreceptor Enzymes--Immunopathogenicity Oakland University Rochester, Michigan	1 R01 EY03807-01	09/01/81–08/31/86	9	121,144	20,444	141,588
SIAKOTOS, ARISTOTLE N Ocular Lysosomes in Hereditary Retinal Degenerations Indiana University--Purdue University, Indianapolis/Pathology Indianapolis, Indiana	5 R01 EY01806-05	07/01/77–06/30/83	4	100,076	39,912	139,988
SIEGEL, IRWIN M Objective Studies of the Retina in Macular Disease New York University/Ophthalmology New York, New York	5 R01 EY03317-02	09/01/80–08/31/82	5	34,575	14,784	49,359
SILVERSTEIN, ARTHUR M Pathogenesis of Uveitis Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY00279-18	06/01/75–05/31/85	2	55,882	30,176	86,058
SINCLAIR, STEPHEN H Blue Field Entoptic Test and Macular Circulation Presbyterian--University of Pennsylvania Medical Center/ Ophthalmology Philadelphia, Pennsylvania	5 R01 EY03388-02	04/01/80–03/31/83	13	38,115	26,887	65,002
SINGERMAN, LAWRENCE J Macular Photocoagulation Study St. Luke's Hospital of Cleveland/Ophthalmology Cleveland, Ohio	5 R10 EY02554-02	09/30/79–12/31/83	5	27,090	15,792	42,882
SLAUGHTER, MALCOLM M Excitatory Amino Acids in Retinal Neurotransmission Washington University/Ophthalmology St. Louis, Missouri	1 R23 EY03868-01	08/01/81–07/31/84	10	37,440	17,584	55,024
SMITH, RONALD E Experimental Ocular Histoplasmosis in Primates University of Southern California/Ophthalmology Los Angeles, California	5 R01 EY01883-05	02/01/77–01/31/85	2	119,325	54,185	173,510
SMYTH, J ROBERT, JR A Genetic Eye Defect and Amelanosis University of Massachusetts, Amherst/Veterinary and Animal Sciences Amherst, Massachusetts	2 R01 EY02575-04	09/01/78–08/31/84	4	66,724	34,875	101,599
SOELDNER, JOHN S Pathogenesis of Microangiopathy in Diabetes Joslin Diabetes Center/Elliott P Joslin Research Lab Boston, Massachusetts	5 R01 EY01421-19	07/01/78–11/30/81	1	0	0	0
SOKOL, BARRY A Photoreceptor Responses to Single Photon Absorptions University of Texas Health Sciences Center, Dallas/ Ophthalmology Dallas, Texas	5 R01 EY03204-02	01/01/80–12/31/82	9	51,831	19,227	71,058
SORGENTE, NINO Vitreo-Retinal Control of Vascular Proliferation Estelle Doheny Eye Foundation Los Angeles, California	5 R01 EY03229-03	09/30/79–09/29/84	1	66,650	42,106	108,756

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
SPERLING, HARRY G Effects of Light on the Retina University of Texas Health Sciences Center, Houston/Sensory Sciences Center Houston, Texas	5 R01 EY02388-08	07/01/77-06/30/82	9	51,923	18,693	70,616
SREBRO, RICHARD Molecular Basis of Photoreceptor Activity University of Texas Health Sciences Center, Dallas/Ophthalmology Dallas, Texas	5 R01 EY02373-02	09/30/77-09/29/81	9	0	0	0
SRIVASTAVA, SATISH K Studies of Ocular Manifestations in Sphingolipidoses University of Texas Medical Branch, Galveston/Human Biological Chemistry and Genetics Galveston, Texas	5 R01 EY02260-03	08/01/78-04/30/82	4	0	0	0
STANLEY, H EUGENE Raman and FTIR Studies of Membrane Lipid Flexibility Boston University/Physiology Boston, Massachusetts	5 R01 EY01996-05	04/01/77-03/31/83	9	58,709	31,116	89,825
STANLEY, H EUGENE Normal and Abnormal Mechanisms of Vision Boston University/Physics Boston, Massachusetts	5 R01 EY02006-02	08/01/76-09/30/81	9	0	0	0
STARK, WILLIAM S Normal and Anomalous Visual Receptor Function University of Missouri, Columbia/Biological Sciences Columbia, Missouri	5 R01 EY03408-03	09/01/79-08/31/82	4	75,327	26,760	102,087
STEINBERG, ROY H Pigment Epithelium Interactions with Neural Retina University of California, San Francisco/Physiology San Francisco, California	5 R01 EY01429-08	09/01/77-08/31/82	8	127,304	36,705	164,009
STEPHENSON, ROBERT S Mechanism of Prolonged Excitation in Photoreceptors Purdue University, West Lafayette/Biological Sciences West Lafayette, Indiana	5 R01 EY03381-02	04/01/80-08/31/81	9	16,205	6,723	22,928
STEPHENSON, ROBERT S Mechanism of Prolonged Excitation in Photoreceptors Wayne State University/Biological Sciences Detroit, Michigan	7 R01 EY04186-01	09/01/81-03/31/83	9	21,465	5,239	26,704
STERN, WALTER H Experimental Massive Periretinal Proliferation University of California, San Francisco/Ophthalmology San Francisco, California	5 R01 EY03228-02	05/01/80-04/30/83	6	79,097	24,520	103,617
STIRLING, CHARLES E Retinal Transport Mechanisms University of Washington/Physiology and Biophysics Seattle, Washington	3 R01 EY02393-03S1	04/01/78-03/31/82	9	8,457	2,875	11,332
STRYER, LUBERT Conformational Aspects of Visual Excitation Stanford University/Structural Biology Stanford, California	5 R01 EY02005-05	12/01/78-11/30/83	9	77,402	39,095	116,497

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
STRYER, LUBERT Time-Resolved Resonance Raman Studies of Vision Stanford University/Structural Biology Stanford, California	2 R01 EY02387-04	04/01/78-03/31/84	9	105,731	31,508	137,239
STURR, JOSEPH F Mechanisms of Visual Sensitivity Syracuse University/Psychology Syracuse, New York	5 R01 EY01571-06	09/01/78-02/28/83	10	0	0	0
SU, YING-YET T Neuropeptides in the Retina Baylor College of Medicine/Ophthalmology Houston, Texas	1 R01 EY03701-01	05/01/81-04/30/84	10	36,242	11,427	47,669
SWANN, DAVID A Chemistry and Biology of Vitreous Structural Proteins Massachusetts General Hospital/Surgical Services Boston, Massachusetts	5 R01 EY01030-08	04/01/77-03/31/85	6	46,872	20,107	66,979
SZAMIER, ROBERT B Morphological Studies of Retinal Degenerations Harvard University/Ophthalmology Boston, Massachusetts	5 R01 EY02988-03	04/01/79-03/31/82	4	73,628	45,335	118,963
TAKEI, YOSHIO System Degeneration of CNS--Experimental Approach Emory University/Pathology and Lab Medicine Atlanta, Georgia	5 R01 EY01967-03	07/01/77-12/31/80	4	0	0	0
TAPPER, DAVID Detection of Ocular Tumors Children's Hospital Medical Center/Surgery Boston, Massachusetts	1 R01 EY03554-01	12/01/80-11/30/83	3	65,884	22,025	87,909
TEMME, LEONARD A Residual Visual Function in Retinitis Pigmentosa State University of New York, Buffalo/Physiology Buffalo, New York	5 R01 EY03214-02	09/01/80-08/31/83	4	29,135	12,905	42,040
THOMAS, THOMAS N Neurobiology of Retinal Serotonin Medical University of South Carolina/Biochemistry Charleston, South Carolina	5 R01 EY03098-02	09/01/80-08/31/83	10	40,135	11,977	52,112
TILTON, RONALD G Pericyte Structure and Function in Diabetes Washington University/Pathology St. Louis, Missouri	5 R23 EY03631-02	09/30/80-09/29/83	1	34,857	18,621	53,478
TOMITA, TSUNEO Cellular Origin of Transretinal Potentials Yale University/Ophthalmology and Visual Science New Haven, Connecticut	5 R01 EY02528-04	08/01/78-07/31/82	11	75,297	43,794	119,091
TOSKES, PHILLIP P Retinal Changes in Malabsorption University of Florida/Medicine Gainesville, Florida	5 R01 EY02831-03	12/01/78-11/30/81	8	61,490	28,321	89,811

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
TOYODA, JUN-ICHI Ionic Basis of Retinal Cell Potential St. Marianna University/Physiology Kawasaki, Japan	2 R01 EY02392-04	04/01/78-03/31/84	10	10,800	0	10,800
TRACHTENBERG, MICHAEL C Retinal Glia: Kinetic Studies of Ion Transport University of Texas Medical Branch, Galveston/Surgery Galveston, Texas	1 R01 EY03479-01	12/01/80-11/30/83	11	68,680	19,165	87,845
TREMPE, CLEMENT L Branch Vein Occlusion Collaborative Study Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 R10 EY02470-03	07/01/78-06/30/85	1	40,169	33,006	73,175
TSO, MARK O Pathology of Retinal Dysfunction University of Illinois Medical Center/Ophthalmology Chicago, Illinois	5 R01 EY01903-06	03/01/79-02/29/84	5	72,486	46,747	119,233
TSO, MARK O Pathology of an Inherited Retinal Dystrophy University of Illinois Medical Center/Ophthalmology Chicago, Illinois	5 R01 EY02596-03	09/01/78-08/31/81	4	0	0	0
TUCKER, GAIL S Anatomic Changes in the Aging Mammalian Retina University of Miami/Ophthalmology Miami, Florida	5 R01 EY03344-02	03/30/80-03/29/83	9	22,746	11,828	34,574
TUTTLE, JOHN R Quantitative Analysis of *Necturus* Retinal Network University of Rochester/Center for Visual Science Rochester, New York	5 R01 EY02598-03	09/01/78-08/31/81	10	0	0	0
VAINISI, SAMUEL J Studies on Ophthalmic Diseases University of Illinois Medical Center/Ophthalmology Chicago, Illinois	5 R01 EY00874-08	05/01/75-05/31/82	5	0	0	0
VALLE, DAVID L Gyrate Atrophy: Treatment and Pathophysiology Johns Hopkins University/Pediatrics Baltimore, Maryland	5 R01 EY02948-03	04/01/79-03/31/84	4	89,855	49,749	139,604
VYGANTAS, CHARLES M Diabetic Retinopathy in Nonhuman Primates University of Illinois Medical Center/Ophthalmology Chicago, Illinois	5 R01 EY02183-03	05/01/78-04/30/82	1	0	0	0
WACKER, WALDON B Experimental Studies of Autoimmune Uveitis University of Louisville/Ophthalmology Louisville, Kentucky	5 R01 EY00254-14	04/01/79-03/31/84	2	43,759	27,862	71,621
WAGGONER, ALAN S Early Molecular Events in Visual Excitation Amherst College/Chemistry Amherst, Massachusetts	5 R01 EY00930-09	07/01/78-06/30/81	9	0	0	0

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
WALLOW, INGOLF H The Blood-Retinal Barrier in Diabetic Retinopathy University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	5 R01 EY01634–06	05/01/79– 04/30/82	1	58,427	25,124	83,551
WALLOW, INGOLF H Morphologic Studies of Diabetic Retinopathy University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	1 R01 EY03630–01	12/01/80– 11/30/83	1	34,164	14,347	48,511
WALOGA, GERALDINE Internal Regulators of Phototransduction Boston University/Physiology Boston, Massachusetts	5 R23 EY03656–02	09/01/80– 08/31/83	9	34,475	17,928	52,403
WALTMAN, STEPHEN R Retinal Vascular Changes in Diabetes Mellitus Washington University/Ophthalmology St. Louis, Missouri	5 R01 EY02198–03	01/01/78– 12/31/80	1	0	0	0
WARSHEL, ARIEH Theoretical Studies of the Vision Process University of Southern California/Chemistry Los Angeles, California	5 R01 EY01766–06	06/01/79– 05/31/82	9	36,645	16,490	53,135
WATERMAN, TALBOT H Photoreceptor Membrane Turnover Controls Yale University/Biology New Haven, Connecticut	5 R01 EY02929–03	03/01/79– 02/28/82	8	64,364	37,811	102,175
WATZKE, ROBERT C *Toxocara canis* Infection of the Primate Eye University of Iowa/Ophthalmology Iowa City, Iowa	5 R01 EY02280–03	08/01/78– 07/31/81	2	0	0	0
WATZKE, ROBERT C Macular Photocoagulation Study University of Iowa/Ophthalmology Iowa City, Iowa	5 R10 EY02553–03	01/15/79– 12/31/83	5	30,532	15,147	45,679
WEBB, ROBERT H High Resolution, Wide-Angle TV Ophthalmoscope Eye Research Institute of Retina Foundation Boston, Massachusetts	3 R01 EY02521–03S1	09/01/78– 11/30/81	13	18,404	15,086	33,490
WEITER, JOHN J Studies of Normal and Pathological Retinal PO_2 Eye Research Institute of Retina Foundation Boston, Massachusetts	7 R01 EY03698–01	09/01/80– 12/31/80	1	0	0	0
WEITER, JOHN J Aging in the Retinal Pigment Epithelium Eye Research Institute of Retina Foundation Boston, Massachusetts	5 R01 EY03699–02	09/01/80– 08/31/82	8	46,890	36,071	82,961
WELEBER, RICHARD G Gyrate Atrophy of the Choroid and Retina Oregon Health Sciences University/Ophthalmology Portland, Oregon	5 R01 EY02527–03	08/01/78– 07/31/82	4	0	0	0

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
WERBLIN, FRANK S Membrane Mechanisms Mediating Retinal Function University of California, Berkeley/Electrical Engineering and Computer Science Berkeley, California	5 R01 EY00561-12	05/01/80-04/30/85	10	91,940	27,439	119,379
WILLIAMS, THEODORE P Damaging Effects of Visible Light Florida State University/Biological Science Tallahassee, Florida	2 R01 EY02250-04	08/01/81-07/31/84	9	62,336	26,365	88,701
WILLIAMS, THEODORE P ^{13}C Retinals as Probes for the Rhodopsin Spectrum Florida State University/Biological Science Tallahassee, Florida	5 R01 EY03501-02	09/01/80-08/31/83	9	64,478	27,173	91,651
WINKLER, BARRY S Photoreceptor Electrogenesis: Dynamics and Controls Oakland University Rochester, Michigan	5 R01 EY01219-06	07/01/78-06/30/82	9	0	0	0
WITKOVSKY, PAUL Retinal Synaptogenesis and Adaptation New York University/Ophthalmology New York, New York	2 R01 EY03570-02	04/01/80-03/31/86	10	116,778	45,134	161,912
WONG, FULTON Conductance Fluctuations in Photoreceptors of *Limulus* University of Texas Medical Branch, Galveston/Marine Biomedical Institute Galveston, Texas	5 R01 EY03308-02	08/01/79-07/31/81	9	0	0	0
WOOTEN, BILLY R Retinal Mosaicism in Females Carrying Color Blindness Brown University/Psychology Providence, Rhode Island	5 R01 EY01512-06	06/01/78-05/31/81	4	0	0	0
WRIGHT, ANTHONY A Hue Discrimination Studies in Primates University of Texas Health Sciences Center, Houston/Sensory Sciences Center Houston, Texas	3 R01 EY01256-06S1	07/01/78-11/30/81	10	5,584	2,122	7,706
WU, JANG-YEN The Role of Taurine and GABA in Mammalian Retina Baylor College of Medicine/Cell Biology Houston, Texas	1 R01 EY03909-01	08/01/81-07/31/84	10	58,833	21,180	80,013
YAU, KING-WAI Visual Transduction in Retinal Photoreceptors University of Texas Medical Branch, Galveston/Physiology and Biophysics Galveston, Texas	1 R01 EY03553-01	02/01/81-01/31/84	9	110,954	14,689	125,643
YAZULLA, STEPHEN Synaptic Transmission in the Retina State University of New York, Stony Brook/Neurobiology and Behavior Stony Brook, New York	5 R01 EY01682-06	05/01/79-04/30/83	10	48,812	21,827	70,639

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
YOUNG, RICHARD W Histophysical and Histochemical Studies on the Eye University of California, Los Angeles/Anatomy Los Angeles, California	5 R01 EY00095-20	05/01/75-04/30/85	9	108,625	33,674	142,299
YOUNG, RICHARD W Daily Rhythms in Visual Cell Metabolism University of California, Los Angeles/Anatomy Los Angeles, California	5 R01 EY02277-03	02/01/78-01/31/81	9	0	0	0
YOUNG, STUART Pathogenetic Mechanisms in Retinal Dysplasia Colorado State University/Pathology Fort Collins, Colorado	5 R01 EY03100-03	07/01/79-06/30/82	4	39,369	14,549	53,918
YU, HYUK Membrane Fluidity and Photoreceptor Function University of Wisconsin, Madison/Chemistry Madison, Wisconsin	2 R01 EY01483-07A1	09/01/77-03/31/84	9	61,642	19,436	81,078
ZIMMERMAN, ROGER P Neuronal Circuitry of Retinal Inner Plexiform Layer Rush University/Neurological Sciences Chicago, Illinois	5 R01 EY03189-02	09/01/80-08/31/83	10	27,968	14,117	42,085
ZIMMERMAN, WILLIAM F Retinal Pigment Epithelium, Subcellular Biochemistry Amherst College/Biology Amherst, Massachusetts	5 R01 EY00675-10	07/01/78-06/30/83	8	14,921	10,277	25,198
ZWAS, FRED Psychophysical Studies of Retinitis Pigmentosa Wayne State University/Ophthalmology Detroit, Michigan	2 R01 EY01707-05A1	06/01/76-07/31/84	4	36,997	17,700	54,697
Total Active Research Grants in this Program in FY 1981: 423 **Total Research Grants in this Program Receiving FY 1981 Funds: 352** **Total FY 1981 Dollars Supporting Research Grants in this Program:**				**22,262,759**	**9,848,509**	**32,111,268**

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
VASCULAR, INFLAMMATORY, AND NEOPLASTIC DISORDERS OF THE RETINA AND CHOROID		
1. Diabetic Retinopathy, Sickle Cell Retinopathy, and Other Vascular Abnormalities		
ADAMS, ANTHONY J	Early Vision Changes in Diabetics University of California, Berkeley/Optometry	$122,973
BEEBE, DAVID C	Development of the Blood-Ocular Barriers Uniformed Services University of the Health Sciences/Anatomy	25,151
BELLHORN, ROY W	Blood-Retinal Barriers in Experimental Retinopathies Montefiore Hospital and Medical Center/Ophthalmology	130,698
BLAIR, NORMAN P	Blood-Retinal Barrier in Experimental Diabetes University of Illinois Medical Center/Ophthalmology	94,490
BOWEN, FRANK W	Prematurity, Vitamin E, and Retrolental Fibroplasia Pennsylvania Hospital/Pediatrics	244,297
BRENDEL, KLAUS	Basement Membranes of the Eye in Diabetic Retinopathy University of Arizona/Pharmacology	90,058
BRESNICK, GEORGE H	Electroretinographic Studies in Diabetic Retinopathy University of Wisconsin, Madison/Ophthalmology	120,395
BUZNEY, SHELDON M	Properties of Retinal Vascular Cells in Tissue Culture Eye Research Institute of Retina Foundation/Retina Research	81,442
CARLSON, EDWARD C	Microvessel Basement Membranes in Diabetic Retinopathy University of California, Davis/Human Anatomy	59,318
CARLSON, EDWARD C	Microvessel Basement Membrane in Diabetic Retinopathy University Of North Dakota/Anatomy	42,638
CLARKSON, JOHN G	Branch Vein Occlusion Collaborative Study University of Miami/Ophthalmology	103,888
COTLIER, EDWARD M	Insulin and Growth Hormone Receptors in Retinal Vessels Yale University/Ophthalmology and Visual Science	98,589
CUNHA-VAZ, JOSE G	Blood-Retinal Barrier in Diabetes Mellitus University of Illinois Medical Center/Ophthalmology	18,642
DE VENECIA, GUILLERMO B	The Primate Retina and Choroid in Malignant Hypertension University of Wisconsin, Madison/Ophthalmology	90,427
DELORI, FRANCOIS C	Trichromatic Oximetry of Retinal Vessels Eye Research Institute of Retina Foundation/Retina Research	147,598
DIDDIE, KENNETH R	Branch Vein Occlusion Collaborative Study University of Southern California/Ophthalmology	67,641
ENGERMAN, RONALD L	Study of Diabetic Retinopathy University of Wisconsin, Madison/Ophthalmology	260,575
ESSNER, EDWARD S	Structure and Permeability of the Choriocapillaris Wayne State University/Ophthalmology	49,205
FEKE, GILBERT T	Human Retinal Blood Flow and Laser Velocimetry Eye Research Institute of Retina Foundation/Retina Research	0
FINKELSTEIN, DANIEL	Branch Vein Occlusion Collaborative Study: Coordinating Center Johns Hopkins University/Ophthalmology	103,325
FINKELSTEIN, DANIEL	Branch Vein Occlusion Collaborative Study Johns Hopkins University/Ophthalmology	73,039
FLOWER, ROBERT W	Prostaglandins in Premature Infant Vascular Physiology Johns Hopkins University/Ophthalmology	130,188

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Flynn, John T	Retrolental Fibroplasia: Clinical and Research Aspects University of Miami/Ophthalmology	423,729
Frank, Robert N	Retinal Microvessels: Tissue Culture and Biochemistry Wayne State University/Ophthalmology	96,917
Frank, Robert N	A Proposed Model for Diabetic Retinopathy Wayne State University/Ophthalmology	58,468
Fratkin, Jonathan D	Proliferation of Retinal Vascular Endothelium in Vitro University of Iowa/Pathology	11,899
Glaser, Bert M	Ocular Angiogenic Factors: Bioassays and Biochemistry Johns Hopkins University/Ophthalmology	91,497
Goldstein, Gary W	Retinal Microvessels: Basis for Injury in Diabetes University of Michigan, Ann Arbor/Pediatrics and Communicable Disorders	144,670
Hayreh, Sohan S	Photocoagulation Studies on Retinal Vein Occlusion University of Iowa/Ophthalmology	80,849
Hayreh, Sohan S	Experimental Ocular Vascular Occlusive Disorders University of Iowa/Ophthalmology	96,136
Howes, Edward L, Jr	Pathogenesis of Altered Ocular Vascular Permeability University of California, San Francisco/Pathology	81,018
Jampol, Lee M	A Longitudinal Study of Hypertensive Retinopathy University of Illinois Medical Center/Ophthalmology	0
Karlin, David B	Ocular Tissue Effects of CO_2 Laser Energy Cornell University Medical Center/Ophthalmology	55,453
Klein, Ronald	Epidemiological Study of Diabetic Retinopathy University of Wisconsin, Madison/Ophthalmology	193,678
Laties, Alan M	The Eye in Experimental Diabetes: Retinal Changes University of Pennsylvania/Ophthalmology	158,034
Mc Meel, J Wallace	Study of Retinal Circulation in Diabetes Eye Research Institute of Retina Foundation/Retina Research	87,931
Mukai, Noritsugu	Pathogenesis of Diabetic Retinopathy Eye Research Institute of Retina Foundation/Retina Research	0
Orth, David H	Branch Vein Occlusion Collaborative Study University of Illinois Medical Center/Ophthalmology	61,913
Patz, Arnall	Retina and Retinal Vessels Johns Hopkins University/Ophthalmology	164,724
Patz, Arnall	Diabetic Retinopathy: Inhibition of Neovascularization Johns Hopkins University/Ophthalmology	0
Paulsen, Elsa P	Retinal/Renal Capillary Leakage in Childhood Diabetes University of Virginia, Charlottesville/Pediatrics	93,586
Pautler, Eugene L	Sugar Transport by Mammalian Blood-Retinal Barriers Colorado State University/Physiology and Biophysics	63,468
Peczon, Benigno D	Ocular Basement Membranes in Diabetic Retinopathy Eye Research Institute of Retina Foundation/Retina Research	0
Phelps, Dale L	Tocopherol Protection in Retinopathy of Prematurity University of California, Los Angeles/Pediatrics	127,532
Phelps, Dale L	Oxygen Therapy of Oxygen-Induced Retinopathy University of California, Los Angeles/Pediatrics	78,038
Pino, Richard M	Cellular Aspects of Permeability in the Posterior Uvea Louisiana State University Medical Center, New Orleans/Anatomy	58,612

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
POMERANTZEFF, OLEG	Evaluate Krypton Laser in Photocoagulation Therapy Eye Research Institute of Retina Foundation/Retina Research	0
PURNELL, EDWARD W	Ultrasonic Microbiometry of the Ocular Coats Case Western Reserve University/Surgery	128,075
RAMSAY, ROBERT C	Ocular Status of Diabetic Renal Transplant Recipients University of Minnesota, Minneapolis-St Paul/Ophthalmology	42,693
RAMSAY, ROBERT C	Involutional Diabetic Retinopathy Study University of Minnesota, Minneapolis-St Paul/Ophthalmology	33,071
RAMSAY, ROBERT C	HLA and Genetic Studies in Diabetic Retinopathy University of Minnesota, Minneapolis-St Paul/Ophthalmology	0
RAND, LAWRENCE I	Case Control Study of Diabetic Retinopathy Joslin Diabetes Center/Elliot P Joslin Research Laboratory	98,614
SOELDNER, JOHN S	Pathogenesis of Microangiopathy in Diabetes Joslin Diabetes Center/Elliott P Joslin Research Lab	0
SORGENTE, NINO	Vitreo-Retinal Control of Vascular Proliferation Estelle Doheny Eye Foundation	108,756
TILTON, RONALD G	Pericyte Structure and Function in Diabetes Washington University/Pathology	53,478
TREMPE, CLEMENT L	Branch Vein Occlusion Collaborative Study Eye Research Institute of Retina Foundation/Retina Research	73,175
VYGANTAS, CHARLES M	Diabetic Retinopathy in Nonhuman Primates University of Illinois Medical Center/Ophthalmology	0
WALLOW, INGOLF H	The Blood-Retinal Barrier in Diabetic Retinopathy University of Wisconsin, Madison/Ophthalmology	83,551
WALLOW, INGOLF H	Morphologic Studies of Diabetic Retinopathy University of Wisconsin, Madison/Ophthalmology	48,511
WALTMAN, STEPHEN R	Retinal Vascular Changes in Diabetes Mellitus Washington University/Ophthalmology	0
WEITER, JOHN J	Studies of Normal and Pathological Retinal PO_2 Eye Research Institute of Retina Foundation	0

Total Active Research Grants in this Subprogram in FY 1981: 60
Total Research Grants in this Subprogram Receiving FY 1981 Funds: 49
Total FY 1981 Dollars Supporting Research Grants in this Subprogram: 5,052,653

2. Inflammatory Disorders

CHAR, DEVRON H	Uveitis: Specific and Nonspecific Cellular Reactivity University of California, San Francisco/Ophthalmology	89,050
CHAR, DEVRON H	Eye Disease Histocompatibility Antigens University of California, San Francisco/Ophthalmology	0
DEL CERRO, MANUEL	Pathogenesis of Retinal Immunopathologies University of Rochester/Center for Brain Research	122,249
GLICKMAN, LAWRENCE T	*Toxocara* Infection and Ocular Disease University of Pennsylvania/Clinical Studies	126,077
GREGERSON, DALE S	Nature and Role of Autoimmune Response in Uveitis Yale University/Ophthalmology and Visual Science	118,315
GREGERSON, DALE S	Ocular Autoimmunity--Immunopathogenesis of EAL Yale University/Ophthalmology and Visual Science	78,110

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Hu, Funan	Stromal Pigment Cells of the Uvea in Culture Medical Research Foundation of Oregon/Cutaneous Biology	81,368
Jones, Dan B	Endogenous Fungal Endophthalmitis Baylor College of Medicine/Ophthalmology	0
Kalsow, Carolyn M	Ocular Autoimmunity Involving Retina or Uvea University of Louisville/Ophthalmology	65,861
Kaplan, Henry J	Cell Surface Analysis of Intraocular Lymphocytes Emory University/Ophthalmology	163,586
Meyers, Roberta L	Pathogenesis of Experimental Allergic Uveitis University of California, Los Angeles/Ophthalmology	0
O'Connor, G Richard	Study of Ocular Toxoplasmosis University of California, San Francisco/Proctor Foundation for Research in Ophthalmology	177,635
Oh, Jang O	Recurrent Herpes Simplex Uveitis University of California, San Francisco/Proctor Foundation for Research in Ophthalmology	110,699
Ostler, H Bruce	Diagnosis of Bacterial Endophthalmitis University of California, San Francisco/Proctor Foundation for Research in Ophthalmology	93,466
Price, James	Eye Histamine: Tissue Levels in Albinos Texas Tech University/Ophthalmology and Visual Sciences	0
Silverstein, Arthur M	Pathogenesis of Uveitis Johns Hopkins University/Ophthalmology	86,058
Smith, Ronald E	Experimental Ocular Histoplasmosis in Primates University of Southern California/Ophthalmology	173,510
Wacker, Waldon B	Experimental Studies of Autoimmune Uveitis University of Louisville/Ophthalmology	71,621
Watzke, Robert C	*Toxocara canis* Infection of the Primate Eye University of Iowa/Ophthalmology	0
Total Active Research Grants in this Subprogram in FY 1981: 19 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 14** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**1,557,605**
3. Tumors		
Albert, Daniel M	Histopathologic Study of Pigmented Ocular Tumors Massachusetts Eye and Ear Infirmary/Ophthalmology	184,788
Albert, Daniel M	Animal Model of Ocular Melanoma Massachusetts Eye and Ear Infirmary/Howe Laboratory	43,482
Baum, Gilbert	Ocular Tumor Diagnosis Yeshiva University/Ophthalmology	0
Char, Devron H	Eye Tumors: In Vitro Immunodiagnosis and Monitoring University of California, San Francisco/Ophthalmology	82,202
Coleman, D Jackson	Therapeutic Ultrasound in Ophthalmology Cornell University Medical Center/Ophthalmology	199,272
Coleman, D Jackson	Ultrasonic Evaluation of Ocular Tissues Cornell University Medical Center/Ophthalmology	179,225
Donoso, Larry A	Retinoblastoma Tumor-Associated Antigens Wills Eye Hospital and Research Institute/Clinical Research	63,338

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
FEENEY, LYNETTE	Ocular Pathology in Melanomatous Swine University of Missouri, Columbia/Ophthalmology	65,397
FERRELL, ROBERT E	Genetic Studies of Retinoblastoma and the RB-1 Locus University of Texas Health Sciences Center, Houston/Center for Demographic and Population Genetics	43,206
GAMEL, JOHN W	Malignant Potential of Uveal Melanomas University of Louisville/Ophthalmology	32,522
L'ESPERANCE, FRANCIS A, JR	Intraocular Tumor Vaporization by CO_2 Laser Radiation Columbia University/Ophthalmology	0
LIU, HSIAO-SU L	Sustained-Release Chemotherapy for Ocular Malignancy Eye Research Institute of Retina Foundation/Retina Research	0
LIU, HSIAO-SU L	Enucleation in the Management of Uveal Melanoma Eye Research Institute of Retina Foundation/Retina Research	83,940
LIZZI, FREDERIC L	Ultrasonic Evaluation of Ocular Tissues Riverside Research Institute/Biomedical Engineering Laboratory	190,617
LIZZI, FREDERIC L	Study of Ultrasonically Induced Ocular Damage Riverside Research Institute/Biomedical Engineering Laboratory	244,977
MUKAI, NORITSUGU	Retinal Tumor Cell Lines in Two Animal Models Eye Research Institute of Retina Foundation/Retina Research	98,554
MURPHREE, A LINN	Biochemical and Cytogenetic Markers in Retinoblastoma Children's Hospital of Los Angeles/Surgery	59,691
PURNELL, EDWARD W	Study of Eye Physiology and Disease by Ultrasound Case Western Reserve University/Surgery	0
REID, TED W	Growth and Metabolism of Retinal Cells Yale University/Ophthalmology and Visual Science	98,706
SERY, THEODORE W	In Vitro and in Vivo Studies of Retinoblastoma Wills Eye Hospital and Research Institute/Microbiology	87,842
TAPPER, DAVID	Detection of Ocular Tumors Children's Hospital Medical Center/Surgery	87,909

Total Active Research Grants in this Subprogram in FY 1981: 21
Total Research Grants in this Subprogram Receiving FY 1981 Funds: 17
Total FY 1981 Dollars Supporting Research Grants in this Subprogram: 1,845,668

DEGENERATIVE DISORDERS OF THE RETINA

4. Developmental and Hereditary Disorders

AGUIRRE, GUSTAVO D	Cone Degeneration--Structural and Functional Studies University of Pennsylvania/Clinical Studies	141,280
AGUIRRE, GUSTAVO D	Pigment Epithelial Hypertrophy Presbyterian--University of Pennsylvania Medical Center/Ophthalmology	19,084
ALPERN, MATTHEW	Psychophysiological Studies of Ocular Abnormalities University of Michigan, Ann Arbor/Ophthalmology	119,369
ARMSTRONG, DONALD	Retinal Degeneration: An Approach to Therapy University of Colorado Health Sciences Center/Neurology	68,293
ARMSTRONG, DONALD	Retinal Degeneration: An Approach to Therapy University of Florida/Ophthalmology	44,692

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Berson, Eliot L	Electrophysiological Studies of Retinal Degenerations Harvard University/Ophthalmology	173,142
Blanks, Janet C	Retinal Differentiation, Cell Interactions, and Plasticity Estelle Doheny Eye Foundation/Electron Microscopy Laboratory	47,446
Buyukmihci, Ned	Effects of Scrapie on Retina and Optic Nerve University of California, Davis/Surgery	4,573
Cicerone, Carol M	Light-Induced and Inherited Retinal Degeneration University of California, San Diego/Psychology	0
Corwin, Thomas R	Psychophysical Diagnosis of Retinitis Pigmentosa University of Rochester/Center for Visual Science	800
Edwards, Ross B	Studies of Pigment Epithelium in Vitro Phagocytosis Harvard University/Ophthalmology	127,798
Farber, Debora A	Cyclic Nucleotides in Cone Metabolism and Disease University of California, Los Angeles/Jules Stein Eye Institute	64,059
Finkelstein, Daniel	Studies of Retinitis Pigmentosa Johns Hopkins University/Ophthalmology	102,054
Flood, Mary T	Cell Biology of Human Chorioretinal Epithelium in Vitro Columbia University/Ophthalmology	110,536
Fulton, Anne B	The Relation of Visual Pigment and Sensitivity Children's Hospital Medical Center/Ophthalmology	45,917
Green, William R	Ocular Clinico-Pathologic Correlation Johns Hopkins University/Ophthalmology	0
Hall, Michael O	The Etiology of Retinal Degeneration University of California, Los Angeles/Jules Stein Eye Institute	130,349
Hollyfield, Joe G	Metabolism of the Retina in Vitro Baylor College of Medicine/Ophthalmology	176,345
Hollyfield, Joe G	Development and Maintenance of Photoreceptor Cells Baylor College of Medicine/Ophthalmology	142,601
La Vail, Matthew M	Cellular Mechanisms of Inherited Retinal Degeneration University of California, San Francisco/Anatomy	161,707
Lai, Yin-Lok	Peripheral Retinal Degeneration in Fischer Rats Yale University/Health Science Resources	0
Lolley, Richard N	Maturation of Metabolism in Normal and Dystrophic Retina University of California, Los Angeles/Anatomy	58,757
Maumenee, Irene H	Genetics in Ophthalmology Johns Hopkins University/Ophthalmology	19,080
Mc Laughlin, Barbara J	Inherited Retinal Degeneration University of Tennessee Center for Health Science/Anatomy	77,979
Noell, Werner K	Retinal Function in Advanced Hereditary Degeneration State University of New York, Buffalo/Physiology	80,435
O'Donnell, James J	Animal Models of Retinal Degeneration in Vitro University of California, San Francisco/Ophthalmology	91,508
O'Donnell, James J	Study Gyrate Atrophy of the Retina University of California, San Francisco/Ophthalmology	101,285
O'Steen, Wendall K	Reproductive Hormones and Retinal Degeneration Wake Forest University/Anatomy	71,760
Organisciak, Daniel T	Environmental Light and Retinal Membrane Development Wright State University/Biological Chemistry	70,721

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
PAPERMASTER, DAVID S	Membrane Biosynthesis in Normal and Dystrophic Retina Yale University/Pathology	105,029
SCHMIDT, SUSAN Y	Biochemical Studies of Retina and Pigment Epithelium Harvard University/Ophthalmology	91,347
SCHMIDT, SUSAN Y	Metabolic Studies of Cultured Pigment Epithelium Massachusetts Eye and Ear Infirmary/Retinal Degenerations	71,510
SHEFFIELD, JOEL B	Retinal Histogenesis Studies Temple University/Biology	0
SIAKOTOS, ARISTOTLE N	Ocular Lysosomes in Hereditary Retinal Degenerations Indiana University--Purdue University, Indianapolis/Pathology	139,988
SMYTH, J ROBERT, JR	A Genetic Eye Defect and Amelanosis University of Massachusetts, Amherst/Veterinary and Animal Sciences	101,599
SRIVASTAVA, SATISH K	Studies of Ocular Manifestations in Sphingolipidoses University of Texas Medical Branch, Galveston/Human Biological Chemistry and Genetics	0
STARK, WILLIAM S	Normal and Anomalous Visual Receptor Function University of Missouri, Columbia/Biological Sciences	102,087
SZAMIER, ROBERT B	Morphological Studies of Retinal Degenerations Harvard University/Ophthalmology	118,963
TAKEI, YOSHIO	System Degeneration of CNS--Experimental Approach Emory University/Pathology and Lab Medicine	0
TEMME, LEONARD A	Residual Visual Function in Retinitis Pigmentosa State University of New York, Buffalo/Physiology	42,040
TSO, MARK O	Pathology of an Inherited Retinal Dystrophy University of Illinois Medical Center/Ophthalmology	0
VALLE, DAVID L	Gyrate Atrophy: Treatment and Pathophysiology Johns Hopkins University/Pediatrics	139,604
WELEBER, RICHARD G	Gyrate Atrophy of the Choroid and Retina Oregon Health Sciences University/Ophthalmology	0
WOOTEN, BILLY R	Retinal Mosaicism in Females Carrying Color Blindness Brown University/Psychology	0
YOUNG, STUART	Pathogenetic Mechanisms in Retinal Dysplasia Colorado State University/Pathology	53,918
ZWAS, FRED	Psychophysical Studies of Retinitis Pigmentosa Wayne State University/Ophthalmology	54,697
Total Active Research Grants in this Subprogram in FY 1981: 45 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 36** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**3,272,352**

5. Macular Degeneration

ABRAMS, GARY W	Macular Photocoagulation Study Medical College of Wisconsin/Ophthalmology	49,293
BIRD, ALAN C	Disciform Macular Disease: Controlled Treatment Trial University of London	0
CHANDRA, SURESH R	Macular Photocoagulation Study University of Wisconsin, Madison/Ophthalmology	49,321
FINE, BEN S	Foveomacular Aging in the Rhesus Monkey American Registry of Pathology	105,881

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Fine, Stuart L	Macular Photocoagulation Study: Reading Center Johns Hopkins University/Ophthalmology	205,362
Fine, Stuart L	Macular Photocoagulation Study Johns Hopkins University/Ophthalmology	94,300
Gass, Donald M	Macular Photocoagulation Study University of Miami/Ophthalmology	65,851
Gitter, Kurt A	Macular Photocoagulation Study Touro Infirmary/Eye Research Laboratory	51,706
Hillis, Argye	Macular Photocoagulation Study: Coordinating Center Johns Hopkins University/Ophthalmology	153,889
Klein, Michael L	Macular Photocoagulation Study Good Samaritan Hospital and Medical Center/Ophthalmology	51,674
March, Wayne F	Macular Photocoagulation Study University of Oklahoma Health Sciences Center/Ophthalmology	37,375
Margherio, Raymond R	Macular Photocoagulation Study William Beaumont Hospital/Ophthalmology	38,951
Orth, David H	Macular Photocoagulation Study Ingalls Memorial Hospital/Retinal Vascular Services	44,607
Parver, Leonard M	The Role of Light-Generated Heat in Macular Disease Georgetown University/Ophthalmology	123,424
Robertson, Dennis M	Chorioretinopathy Mayo Foundation/Ophthalmology	0
Ryan, Stephen J	An Experimental Approach to Maculopathy University of Southern California/Ophthalmology	89,281
Siegel, Irwin M	Objective Studies of the Retina in Macular Disease New York University/Ophthalmology	49,359
Singerman, Lawrence J	Macular Photocoagulation Study St. Luke's Hospital of Cleveland/Ophthalmology	42,882
Tso, Mark O	Pathology of Retinal Dysfunction University of Illinois Medical Center/Ophthalmology	119,233
Vainisi, Samuel J	Studies on Ophthalmic Diseases University of Illinois Medical Center/Ophthalmology	0
Watzke, Robert C	Macular Photocoagulation Study University of Iowa/Ophthalmology	45,679
Total Active Research Grants in this Subprogram in FY 1981: 21 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 18** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**1,418,068**

6. Retinal Detachment and Vitreous Disorders

Adler, Alice J	Biochemical Aspects of Retinal Adhesion Eye Research Institute of Retina Foundation/Retina Research	87,283
Armand, Gerard	Structure of Vitreous Glycosaminoglycans Columbia University/Ophthalmology	105,080
Balazs, Endre A	Vitreous and Hyaluronate: Structure and Function Columbia University/Ophthalmology	234,907
Burke, Janice M	Role of Proliferation in Vitreoretinal Pathology University of Arizona/Surgery	76,887

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Chakrabarti, Bireswar	Role of Hyaluronic Acid in the Vitreous Structure Eye Research Institute of Retina Foundation/Retina Research	67,164
Cross, Harold E	Vitreous Reactions to Injury University of Arizona/Surgery	0
Diddie, Kenneth R	Pathogenesis of Experimental Periretinal Proliferation University of Southern California/Ophthalmology	0
Foos, Robert Y	Vitreoretinal Juncture University of California, Los Angeles/Pathology	69,082
Fowlks, William L	Biochemical Studies of the Blood-Vitreous Body Barrier University of Minnesota, Minneapolis-St Paul/Ophthalmology	0
Hultsch, Erwin	Chemistry and Morphology of Vitreous Regeneration Eye Research Institute of Retina Foundation/Retina Research	0
Hultsch, Erwin	Pathophysiology of Vitreous Eye Research Institute of Retina Foundation/Retina Research	75,598
Jacobson, Bernard J	Role of Hyalocytes in the Vitreous Boston Biomedical Research Institute/Fine Structure	100,792
Lai, Yin-Lok	Studies of Subretinal and Choroidal Spaces St. Louis University/Internal Medicine	102,201
Machemer, Robert	Vitrectomy Through the Pars Plana Duke University/Ophthalmology	154,938
Radtke, Norman D	Animal Model for Massive Periretinal Proliferation University of Louisville/Ophthalmology	68,869
Refojo, Miguel F	Synthetic Hydrophilic Polymers for Eye Surgery Eye Research Institute of Retina Foundation/Polymer Chemistry Laboratory	127,037
Rhodes, Roy H	Aspects of Mouse Vitreous Development and Pathology University of Tennessee Center for Health Science/Pathology	35,288
Ryan, Stephen J	Pars Plana Vitrectomy in Penetrating Ocular Trauma University of Southern California/Ophthalmology	171,583
Stern, Walter H	Experimental Massive Periretinal Proliferation University of California, San Francisco/Ophthalmology	103,617
Swann, David A	Chemistry and Biology of Vitreous Structural Proteins Massachusetts General Hospital/Surgical Services	66,979
Total Active Research Grants in this Subprogram in FY 1981: 20 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 16** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**1,647,305**

7. Toxic and Environmental Disorders

Kretzer, Frank L	Retina: Ultrastructure of Photoreceptors Baylor College of Medicine/Ophthalmology	64,903
Potts, Albert M	The Action of Drugs and Poisons on the Eye University of Louisville/Ophthalmology	26,184
Potts, Albert M	Pathophysiological Studies on Optic Nerve University of Louisville/Ophthalmology	0
Total Active Research Grants in this Subprogram in FY 1981: 3 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 2** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**91,087**

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
FUNDAMENTAL PROCESSES AND RETINAL DISORDERS		
8. Retinal Pigment Epithelium		
ANDERSON, DON H	Relationship of Mammalian Cones to Pigment Epithelium University of California, Santa Barbara/Biological Sciences	99,430
BASINGER, SCOTT F	Retina: Photoreceptor Membrane Synthesis and Function Baylor College of Medicine/Ophthalmology	89,794
BERNSTEIN, MAURICE H	Phagocytic Mechanisms of the Retinal Pigment Epithelium Wayne State University/Anatomy	64,046
BESHARSE, JOSEPH C	Studies on Disk Renewal in Retinal Visual Cells Emory University/Anatomy	110,511
BESHARSE, JOSEPH C	Visual Cell-Pigment Cell Interface and Disc Turnover Emory University/Anatomy	64,166
BOK, DEAN	Electron Microscope Autoradiography of Ocular Tissues University of California, Los Angeles/Anatomy	99,431
DRATZ, EDWARD A	Antioxidants and Retina-Pigment Epithelium Function University of California, Santa Cruz/Chemistry	10,400
ESSNER, EDWARD S	Functions of Lysosomes in Retinal Pigment Epithelium Wayne State University/Ophthalmology	71,739
FEENEY, LYNETTE	Synthesis and Phagocytosis in Ocular Neuroepithelia University of Missouri, Columbia/Ophthalmology	85,767
FISHER, STEVEN K	The Developing and Adult Visual System University of California, Santa Barbara/Biological Sciences	66,840
GOLDMAN, ARNOLD I	Factors Controlling Disc Shedding and Phagocytosis Medical College of Wisconsin/Ophthalmology	72,016
HORWITZ, JOSEPH	Retinol Delivery to Pigment Epithelium and Neural Retina University of California, Los Angeles/Jules Stein Eye Institute	0
KEAN, EDWARD L	Role of Sugars in Phagocytosis of Rod Outer Segments Case Western Reserve University/Surgery	119,581
LEURE-DU PREE, ALPHONSE E	Retinal Zinc: Cellular Location and Visual Function Pennsylvania State University, Hershey Medical Center/Anatomy	0
LIOU, GREGORY I	Binding Proteins for Retinoids in Ocular Tissues Baylor College of Medicine/Ophthalmology	48,733
MARMOR, MICHAEL F	Interaction Between Retina and Pigment Epithelium Stanford University/Surgery	154,762
MILLER, SHELDON S	Homeostatic Ability of the Retinal Pigment Epithelium University of California, Berkeley/Physiological Optics	95,159
RYAN, STEPHEN J	Bruch's Membrane/Retinal Pigment Epithelial Studies University of Southern California/Ophthalmology	0
SAARI, JOHN C	Biochemistry of the Retina and Pigment Epithelium University of Washington/Ophthalmology	103,124
STEINBERG, ROY H	Pigment Epithelium Interactions with Neural Retina University of California, San Francisco/Physiology	164,009
TOSKES, PHILLIP P	Retinal Changes in Malabsorption University of Florida/Medicine	89,811
WATERMAN, TALBOT H	Photoreceptor Membrane Turnover Controls Yale University/Biology	102,175

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
WEITER, JOHN J	Aging in the Retinal Pigment Epithelium Eye Research Institute of Retina Foundation	82,961
ZIMMERMAN, WILLIAM F	Retinal Pigment Epithelium, Subcellular Biochemistry Amherst College/Biology	25,198
Total Active Research Grants in this Subprogram in FY 1981: 24 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 21** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**1,819,653**
9. Photoreceptors, Visual Pigments, and Phototransduction		
ALBERT, ARLENE D	Rhodopsin Structure and Environment in Vision State University of New York, Buffalo/Biochemistry	48,870
ALFANO, ROBERT R	The Fast Kinetics of the Primary Visual Processes City College of New York/Physics	95,729
ANDERSON, ROBERT E	Chemistry and Metabolism of Retina Lipids Baylor College of Medicine/Ophthalmology	150,803
APPLEBURY, MEREDITHE L	Photoreception and Transduction in Vision Princeton University/Biochemical Sciences	180,084
APPLEBURY, MEREDITHE L	Biochemistry of Photoreceptor Cells Princeton University/Biochemical Sciences	0
BAKER, HOWARD D	Human Visual Sensitivity and Visual Pigment Levels Florida State University/Psychology	33,377
BAYLOR, DENIS A	Neural Signalling in the Retina Stanford University/Neurobiology	145,894
BERNARD, GARY D	Optical Information Processing in Eyes Yale University/Ophthalmology and Visual Science	76,900
BIRGE, ROBERT R	Photophysics of Visual Chromophores and Rhodopsin University of California, Riverside/Chemistry	60,937
BLASIE, J KENT	Structure and Function of Membranes Involved in Vision University of Pennsylvania/Johnson Foundation for Medical Physics	91,638
BOK, DEAN	Pathways for Color Vision in Retinas University of California, Los Angeles/Jules Stein Eye Institute	0
BOWNDS, M DERIC	Molecular Biology of Visual Receptor Outer Segments University of Wisconsin, Madison/Molecular Biology	127,082
BRIDGES, C DAVID	Photo- and Biochemical Reactions in the Visual System Baylor College of Medicine/Ophthalmology	152,066
BROWN, H MACK	Membrane Mechanisms Associated with Phototransduction University of Utah/Physiology	53,298
BROWN, HAROLD M	Transduction Mechanism of Photoreceptors University of Utah/Physiology	156,226
BROWN, JOEL E	Visual Receptor Potentials State University of New York, Stony Brook/Physiology and Biophysics	78,206
BROWN, JOEL E	Anatomy and Physiology of Vision State University of New York, Stony Brook/Physiology and Biophysics	53,886
BROWN, MICHAEL F	Membrane Basis of Visual Excitation University of Virginia, Charlottesville/Chemistry	97,411
BROWN, PAUL K	Microspectrophotometry of Photoreceptors Harvard University/Biology	32,561

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Bunt, Ann H	Protein Transport in Retinal Photoreceptors and Axons University of Washington/Ophthalmology	95,423
Burnside, Mary B	Circadian Retinal Motility: Role of Cyclic Nucleotides University of California, Berkeley/Physiology-Anatomy	75,763
Callender, Robert H	Resonance Raman Study of Rhodopsin and Related Pigments City College of New York/Physics	135,197
Chamberlain, Steven C	Adaptive Mechanisms That Maintain Visual Sensitivity Syracuse University/Institute for Sensory Research	78,221
Cohen, Adolph I	Cytology and Physiology of the Retina Washington University/Ophthalmology	159,672
Cone, Richard A	Rhodopsin, Diffusion, and Visual Excitation Johns Hopkins University/Biophysics	83,246
Copenhagen, David R	Synaptic Interaction in the Vertebrate Retina University of California, San Francisco/Ophthalmology	98,581
Corless, Joseph M	Retinal Rod Photoreceptor Membrane Structure/Function Duke University/Anatomy	146,360
Crescitelli, Frederick	Properties of Photopic and Transmuted Visual Cells University of California, Los Angeles/Biology	49,998
Cusanovich, Michael A	Regeneration of the Visual Pigment Rhodopsin University of Arizona/University Department of Biochemistry	0
Dowling, John E	Physiology of Photoreceptors of the Retina Harvard University/Biology	0
Downer, Nancy W	Domains of Structure and Function in Rhodopsin University of Arizona/University Department of Biochemistry	62,163
Dratz, Edward A	The Structure of Rhodopsin and the Rod Disk Membrane University of California, Santa Cruz/Chemistry	79,860
Ebrey, Thomas G	Mechanism of Visual Excitation University of Illinois, Urbana-Champaign/Physiology and Biophysics	123,497
Fager, Roger S	Preparation and Characterization of Cone Pigments University of Virginia, Charlottesville/Physiology	115,192
Fain, Gordon L	Physiology of Photoreceptors University of California, Los Angeles/Jules Stein Eye Institute	107,516
Fain, Gordon L	Mechanism of Visual Adaptation University of California, Los Angeles/Jules Stein Eye Institute	68,617
Fein, Alan	Mechanisms of Vision Marine Biological Laboratory/Laboratory of Sensory Physiology	95,750
Fein, Alan	Mechanisms of Visual Excitation Marine Biological Laboratory/Laboratory of Sensory Physiology	82,680
Ferrendelli, James A	Biochemistry and Pharmacology of the Retina Washington University/Pharmacology	174,655
Foster, Kenneth W	Analysis of Rhodopsin-Like Photoreceptors in Algae Mount Sinai School of Medicine/Pharmacology	100,610
Fung, Bernard K	Phosphodiesterase and GTPase Activation in Retinal Rods University of Rochester/Radiation Biology and Biophysics	100,069
Gillary, Howard L	Visual Mechanisms in a Regenerating Gastropod Retina University of Hawaii, Manoa/Bekesy Lab of Neurobiology	0
Goldsmith, Timothy H	Visual Mechanisms Yale University/Biology	93,265

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
GORMAN, ANTHONY L	Ionic Basis of Visual Responses Boston University/Physiology	114,846
HAM, WILLIAM T, JR	Primate Ocular Photopathology of the Lens and Retina Virginia Commonwealth University/Biophysics	125,084
HARGRAVE, PAUL A	Rhodopsin Structure and Function Southern Illinois University, Carbondale/Chemistry and Biochemistry	94,138
HARGRAVE, PAUL A	Rhodopsin Topography in the Rod Cell Disc Membrane Southern Illinois University, Carbondale/Chemistry and Biochemistry	74,882
HOLTZMAN, ERIC	Formation, Circulation, and Fate of Neuronal Membranes Columbia University/Biological Sciences	112,298
HONG, FELIX T	Study of the Early Receptor Potential in Vision Wayne State University/Physiology	47,149
HUBBELL, WAYNE L	Molecular Basis of Membrane Excitation University of California, Berkeley/Chemistry	112,606
HUDSON, BRUCE S	Electronic Structure of the Visual Polyenes University of Oregon/Chemistry	96,222
JOHNS, PAMELA R	Neurogenesis and Synaptogenesis of Retinal Photoreceptor University of Michigan, Ann Arbor/Anatomy	62,882
KAPLAN, MICHAEL W	Optical Studies of Photoreceptor Function Good Samaritan Hospital and Medical Center/Ophthalmology	84,810
KARPLUS, MARTIN	Theoretical Studies of Biomolecules Harvard University/Chemistry	92,890
KEAN, EDWARD L	Glycolipid and Glycoprotein Metabolism in Eye Tissue Case Western Reserve University/Surgery	163,716
KLIGER, DAVID S	Investigation of the Bleaching Stages of Rhodopsin University of California, Santa Cruz/Chemistry	50,549
KOBLASZ, ARTHUR	Nonlinear Analysis of the Electroretinogram Georgia Institute of Technology/School of Engineering Science and Mechanics	0
KOHLER, BRYAN E	Spectroscopic Studies of Visual Pigments Wesleyan University/Chemistry	77,951
KORENBROT, JUAN I	Mechanism of Light-Transduction in Photoreceptors University of California, San Francisco/Physiology	124,285
KROPF, ALLEN	Photochemistry of the Visual Pigments Amherst College/Chemistry	62,305
LEEPER, HAROLD F	Intracellular Recording from Mammalian Photoreceptors University of California, San Francisco/Physiology	44,915
LEVINE, MICHAEL W	Rod and Cone Systems: Properties and Interactions University of Illinois, Chicago Circle/Psychology	0
LEWIS, AARON	Laser Raman Spectroscopy of the Visual Processes Cornell University, Ithaca/Applied & Engineering Physics	0
LIEBMAN, PAUL A	Microphotometric Studies on Retinal Rods and Cones University of Pennsylvania/Anatomy	227,082
LIPETZ, LEO E	The Spectral Sensitivities of Turtle Photoreceptors Ohio State University/Division of Sensory Biophysics	34,864
LISMAN, JOHN E	Mechanisms of Adaptation Brandeis University/Biology	113,829
LITMAN, BURTON J	Disk Function: Rhodopsin Substructure and Environment University of Virginia, Charlottesville/Biochemistry	70,574

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
MACNICHOL, EDWARD F, JR	Studies of Single Visual Receptor Cells Marine Biological Laboratory/Sensory Physiology	163,695
MATEESCU, GHEORGHE D	NMR Spectral Studies of Visual Pigments Case Western Reserve University/Chemistry	106,030
MATHIES, RICHARD A	Raman Investigations of the Molecular Basis of Vision University of California, Berkeley/Chemistry	53,806
MATTHEWS, GARY G	Cellular Neurophysiology of the Vertebrate Retina State University of New York, Stony Brook/Neurobiology and Behavior	47,930
MC CONNELL, DAVID G	Studies of Retinal Rod Cyclic GMP Phosphodiesterase Michigan State University/Biomechanics	0
MC LAUGHLIN, BARBARA J	Photoreceptor Synatogenesis in the Retina University of Tennessee Center for Health Science/Anatomy	51,725
MILLER, WILLIAM H	Photoreceptor Function Yale University/Ophthalmology and Visual Science	88,786
MINKE, BARUCH	Intermediate Steps of Phototransduction Purdue University, West Lafayette/Biological Sciences	0
MINKE, BARUCH	Genetic Dissection of Phototransduction Hebrew University of Jerusalem/Physiology	69,080
MOLDAY, ROBERT S	A Study of Retinal Photoreceptor Membrane Proteins University of British Columbia/Biochmistry	37,600
MONTAL, S MAURICIO	Rhodopsin in Bilayer Membranes and Visual Excitation University of California, San Diego/Physics	108,791
NAKANISHI, KOJI	Chemical and Bioorganic Studies of Visual Pigments Columbia University/Chemistry	77,502
NOLTE, JOHN F	Pineal Photoreceptors University of Colorado Health Sciences Center/Anatomy	0
NORMANN, RICHARD A	Electrophysiological Studies of the Vertebrate Retina University of Utah/Surgery	33,583
O'BRYAN, PAUL M, JR	Early Receptor Potentials in Single Vertebrate Cones Boston University/Physiology	91,346
OKAMURA, WILLIAM H	Studies on the Retinoids and Vinyl Allene Chemistry University of California, Riverside/Chemistry	57,442
OLSON, JAMES A	The Enzymatic Isomerization of Vitamin A in the Eye Iowa State University of Science and Technology/Biochemistry and Biophysics	44,935
OSTROY, SANFORD E	Related Molecular and Physiological Events in Vision Purdue University, West Lafayette/Biological Sciences	79,140
OWEN, JEFFREY D	Ca^{2+} Electrode Measurements in *Limulus* Photoreceptors University of Utah/Physiology	0
PAK, WILLIAM L	Genetic Dissection of the Phototransduction Process Purdue University, West Lafayette/Biological Sciences	138,616
PAPERMASTER, DAVID S	Immunocytochemistry of Membrane Biosynthesis in Eye Yale University/Pathology	122,987
PASANTES-MORALES, HERMINIA	Taurine and Ionic Fluxes in Retina National Autonomous University of Mexico/Neurosciences	13,600
PEPPERBERG, DAVID R	Visual Pigment and Photoreceptor Adaptation Purdue University, West Lafayette/Biological Sciences	55,031
PETERS, KEVIN S	Picosecond Study of the Visual Protein Rhodopsin Harvard University/Chemistry	45,703

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
PINTO, LAWRENCE H	Intermediate Processes in Photoreceptors Purdue University, West Lafayette/Biological Sciences	89,924
PUGH, EDWARD N, JR	Analysis of the Mechanisms of Photoreceptor Kinetics University of Pennsylvania/Psychology	0
RAVIOLA, ELIO	Freeze-Fracture Studies of the Retina Harvard University/Anatomy	152,264
RAVIOLA, ELIO	Cell Communication in Retina and Lens Harvard University/Anatomy	66,668
REYNOLDS, GEORGE T	X-Ray Diffraction Studies of Vertebrate Eye Membrane Princeton University/Physics	70,183
ROTHSCHILD, KENNETH J	Biophysical Study of Oriented Photoreceptor Membrane Boston University/Physiology	0
SAARI, JOHN C	Retinal Metabolism University of Washington/Ophthalmology	57,843
SCHOELLMANN, GUENTHER	Molecular Aspects of the Photoreceptor Function Tulane University of Louisiana/Biochemistry	56,673
SCHWARTZ, ERIC A	Development of Photoreceptors in a Vertebrate Eye University of Chicago/Pharmacological and Physiological Sciences	44,868
SHERMAN, WARREN V	Light Response of the Purple Membrane of *H. halobium* Chicago State University/Physical Sciences	35,083
SHICHI, HITOSHI	Retinal Photoreceptor Enzymes--Immunopathogenicity Oakland University	141,588
SOKOL, BARRY A	Photoreceptor Responses to Single Photon Absorptions University of Texas Health Sciences Center, Dallas/Ophthalmology	71,058
SPERLING, HARRY G	Effects of Light on the Retina University of Texas Health Sciences Center, Houston/Sensory Sciences Center	70,616
SREBRO, RICHARD	Molecular Basis of Photoreceptor Activity University of Texas Health Sciences Center, Dallas/Ophthalmology	0
STANLEY, H EUGENE	Raman and FTIR Studies of Membrane Lipid Flexibility Boston University/Physiology	89,825
STANLEY, H EUGENE	Normal and Abnormal Mechanisms of Vision Boston University/Physics	0
STEPHENSON, ROBERT S	Mechanism of Prolonged Excitation in Photoreceptors Purdue University, West Lafayette/Biological Sciences	22,928
STEPHENSON, ROBERT S	Mechanism of Prolonged Excitation in Photoreceptors Wayne State University/Biological Sciences	26,704
STIRLING, CHARLES E	Retinal Transport Mechanisms University of Washington/Physiology and Biophysics	11,332
STRYER, LUBERT	Conformational Aspects of Visual Excitation Stanford University/Structural Biology	116,497
STRYER, LUBERT	Time-Resolved Resonance Raman Studies of Vision Stanford University/Structural Biology	137,239
TUCKER, GAIL S	Anatomic Changes in the Aging Mammalian Retina University of Miami/Ophthalmology	34,574
WAGGONER, ALAN S	Early Molecular Events in Visual Excitation Amherst College/Chemistry	0
WALOGA, GERALDINE	Internal Regulators of Phototransduction Boston University/Physiology	52,403

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
WARSHEL, ARIEH	Theoretical Studies of the Vision Process University of Southern California/Chemistry	53,135
WILLIAMS, THEODORE P	Damaging Effects of Visible Light Florida State University/Biological Science	88,701
WILLIAMS, THEODORE P	^{13}C Retinals as Probes for the Rhodopsin Spectrum Florida State University/Biological Science	91,651
WINKLER, BARRY S	Photoreceptor Electrogenesis: Dynamics and Controls Oakland University	0
WONG, FULTON	Conductance Fluctuations in Photoreceptors of *Limulus* University of Texas Medical Branch, Galveston/Marine Biomedical Institute	0
YAU, KING-WAI	Visual Transduction in Retinal Photoreceptors University of Texas Medical Branch, Galveston/Physiology and Biophysics	125,643
YOUNG, RICHARD W	Histophysical and Histochemical Studies on the Eye University of California, Los Angeles/Anatomy	142,299
YOUNG, RICHARD W	Daily Rhythms in Visual Cell Metabolism University of California, Los Angeles/Anatomy	0
YU, HYUK	Membrane Fluidity and Photoreceptor Function University of Wisconsin, Madison/Chemistry	81,078
Total Active Research Grants in this Subprogram in FY 1981: 123 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 103** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**9,167,285**

10. Retinal Organization, Neurotransmission, and Adaptation

ABRAMOV, ISRAEL	Spectral Properties of Cells in the Goldfish Retina Brooklyn College/Psychology	0
ADOLPH, ALAN R	Synaptic Transmitters and Vertebrate Retinal Function Eye Research Institute of Retina Foundation/Retina Research	112,726
AMES, ADELBERT, III	Energy Metabolism and Function in Retina Massachusetts General Hospital/Neurosurgical Service	72,593
ARNETT, DAVID W	Function of Neuron Networks in Vertebrate Visual Systems University of Texas Medical Branch, Galveston/Physiology and Biophysics	0
BARON, WILLIAM S	Photoreceptor Information Processing in Primates SRI International/Psychobiology and Physiology Laboratory	21,236
BRANDON, CHRISTOPHER J	GABA- and Somatostatin-Neurons in Retinal Function University of Oregon Health Sciences Center/Anatomy	69,774
BRECHA, NICHOLAS C	Localization of Neuropeptides in the Retina University of California, Los Angeles/Center for Ulcer Research and Education	90,223
BROWN, KENNETH T	Neurophysiology of the Vertebrate Retina University of California, San Francisco/Physiology	208,424
BUCK, STEVEN L	Interaction in the Visual System University of Washington/Psychology	50,680
BURKHARDT, DWIGHT A	Vision and Intraretinal Potentials University of Minnesota, Minneapolis-St Paul/Psychology	43,502
BURNS, MARGARET S	Ion Localization in Eye Physiology: New Techniques Montefiore Hospital and Medical Center/Ophthalmology	122,361
CHAPPELL, RICHARD L	Neural Interactions of the Retina Hunter College/Biological Sciences	53,387

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
CITRON, MARK C	Local Circuitry for Pattern Recognition in the Retina Estelle Doheny Eye Foundation	64,645
DACHEUX, RAMON F, II	Functional Anatomy of a Mammalian Retina Harvard University/Anatomy	76,620
DE VOE, ROBERT D	Analysis of Flicker Retinal Action Potentials Johns Hopkins University/Physiology	88,891
DETWILER, PETER B	Photoreceptors and 2nd Order Cells in Vertebrate Retina University of Washington/Physiology and Biophysics	44,972
DOWLING, JOHN E	Anatomical Organization of the Visual System Harvard University/Biology	65,065
DOWLING, JOHN E	Functional Organization of Vertebrate Visual Systems Harvard University/Biology	73,363
DRUM, BRUCE A	Roles of Tonic and Phasic Neural Systems in Vision George Washington University/Ophthalmology	78,297
ELDRED, WILLIAM D	Ultrastructural Study of Peptidergic Retinal Neurons State University of New York, Stony Brook/Neurobiology and Behavior	50,548
FAMIGLIETTI, EDWARD V, JR	Neural Architecture of Vertebrate Retina Wayne State University/Anatomy	95,102
FULTON, ANNE B	Retinal and Visual Development in the First Year Children's Hospital Medical Center/Ophthalmology	137,539
GEISLER, WILSON S	Visual Adaptation in Cone and Rod Systems University of Texas, Austin/Psychology	31,790
GOURAS, PETER	Neurophysiology of Primate Vision Columbia University/Ophthalmology	175,702
GREEN, DANIEL G	Functional Organization of the Retina University of Michigan, Ann Arbor/Ophthalmology	89,028
HARTLINE, PETER H	Photoresponse Kinetic: Effects of Adaptation Eye Research Institute of Retina Foundation/Retina Research	0
HINDS, JAMES W	Serial Section Analysis of Developing Mouse Retina Boston University/Anatomy	0
HOFFERT, JACK R	Comparative Physiological Studies of Vertebrate Eyes Michigan State University/Physiology	53,440
HOOD, DONALD C	Psychophysical Measures of Suprathreshold Responses Columbia University/Psychology	84,787
KLEINSCHMIDT, JOCHEN	Neurotransmitter Mechanisms in the Distal Retina State University of New York, Stony Brook/Neurobiology and Behavior	56,533
KOLB, HELGA E	Neural Circuitry of the Vertebrate Retina University of Utah/Physiology	93,617
LAM, DOMINIC M	Neurotransmitters in the Visual System Baylor College of Medicine/Ophthalmology	59,542
LAND, PETER W	Ganglion Cells in Rat Retina Medical University of South Carolina/Anatomy	43,766
LATIES, ALAN M	Autonomic Innervation of the Eye Presbyterian--University of Pennsylvania Medical Center/Opthalmology	0
MACLEOD, DONALD I	Retinal Mechanisms in Vision University of California, San Diego/Psychology	56,430
MAKOUS, WALTER L	Duplicity Theory and the Stiles-Crawford Effect University of Rochester/Center for Visual Science	67,509

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
MARC, ROBERT E	Structural Neurochemistry of Retinal Circuits University of Texas Health Sciences Center, Houston/Sensory Sciences Center	68,886
MASLAND, RICHARD H	Neurotransmission in Mammalian Retina Massachusetts General Hospital/Neurosurgical Service	50,172
MASSOF, ROBERT W	Studies of Visual Function in the Peripheral Retina Johns Hopkins University/Ophthalmology	50,278
MC REYNOLDS, JOHN S	Functional Organization of the Retina University of Michigan, Ann Arbor/Physiology	69,378
MEINERTZHAGEN, IAN A	Visual System Development and Synaptogenesis Dalhousie University/Psychology	30,255
MILLER, ROBERT F	Cell Communication in the Vertebrate Retina Washington University/Ophthalmology	129,331
OBERDORFER, MICHAEL D	Eye Development and Abnormal Visual Pathways University of Texas Health Sciences Center, Houston/Neurobiology and Anatomy	28,206
OGDEN, THOMAS E	A Study of Structure and Function of Retinal Neurons Estelle Doheny Eye Foundation	0
OGDEN, THOMAS E	Primate Retina Nerve Fiber Layer Estelle Doheny Eye Foundation	57,837
OYSTER, CLYDE W	Neural Interactions in Retina and Visual Pathways University of Alabama, Birmingham/Physiological Optics	77,018
PANESSA-WARREN, BARBARA	Diffusible and Bound Calcium in Retina and Choroid State University of New York, Stony Brook/Anatomical Sciences	81,030
PERLMAN, IDO	Mechanisms of Visual Adaptation in the Vertebrate Eye Technion-Israel Institute of Technology/Physiology	22,550
POURCHO, ROBERTA G	Retinal Neurotransmitters and Synaptic Circuitry Wayne State University/Anatomy	48,893
PURPLE, RICHARD L	Studies on Integrative Mechanisms of Neurons University of Minnesota, Minneapolis-St Paul/Physiology	0
RANDO, ROBERT R	The Neuropharmacology of the Retina Harvard University/Pharmacology	104,505
REDBURN, DIANNA A	Biochemical Analysis of Transmitter Agents in Retina University of Texas Health Sciences Center, Houston/Neurobiology and Anatomy	91,170
REID, TED W	Role of Glutamine Transferase in the Retina Yale University/Ophthalmology and Visual Science	73,008
REIF-LEHRER, LIANE	Biochemical Control in Normal and Diseased Retinas Eye Research Institute of Retina Foundation/Department of Ophthalmology	167,044
RIPPS, HARRIS	Visual Adaptation in the Vertebrate Retina New York University/Ophthalmology	197,247
RUBINSON, KALMAN	Retinal Development and Transformation of the Lamprey New York University/Physiology and Biophysics	0
SARTHY, VIJAY P	Neurotransmitters in the Visual System University of Washington/Ophthalmology	77,998
SCHAEFFER, JAMES M	Biochemical Characterization of Isolated Retinal Cells University of California, San Diego/Reproductive Medicine	65,777
SCOTT, DAVID A	Eye Development: Growth Cone Structure in *Drosophila* University of Rochester/Center for Brain Research	0

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
SLAUGHTER, MALCOLM M	Excitatory Amino Acids in Retinal Neurotransmission Washington University/Ophthalmology	55,024
STURR, JOSEPH F	Mechanisms of Visual Sensitivity Syracuse University/Psychology	0
SU, YING-YET T	Neuropeptides in the Retina Baylor College of Medicine/Ophthalmology	47,669
THOMAS, THOMAS N	Neurobiology of Retinal Serotonin Medical University of South Carolina/Biochemistry	52,112
TOYODA, JUN-ICHI	Ionic Basis of Retinal Cell Potential St. Marianna University/Physiology	10,800
TUTTLE, JOHN R	Quantitative Analysis of *Necturus* Retinal Network University of Rochester/Center for Visual Science	0
WERBLIN, FRANK S	Membrane Mechanisms Mediating Retinal Function University of California, Berkeley/Electrical Engineering and Computer Science	119,379
WITKOVSKY, PAUL	Retinal Synaptogenesis and Adaptation New York University/Ophthalmology	161,912
WRIGHT, ANTHONY A	Hue Discrimination Studies in Primates University of Texas Health Sciences Center, Houston/Sensory Sciences Center	7,706
WU, JANG-YEN	The Role of Taurine and GABA in Mammalian Retina Baylor College of Medicine/Cell Biology	80,013
YAZULLA, STEPHEN	Synaptic Transmission in the Retina State University of New York, Stony Brook/Neurobiology and Behavior	70,639
ZIMMERMAN, ROGER P	Neuronal Circuitry of Retinal Inner Plexiform Layer Rush University/Neurological Sciences	42,085
Total Active Research Grants in this Subprogram in FY 1981: 71 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 60** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**4,570,014**

11. Glial Cells and the Retinal Microenvironment

COLES, JONATHAN A	Ion Movements Across Glial Membranes in Retina University of Geneva/Experimental Ophthalmology Laboratory	60,057
PROENZA, LUIS M	Physiology of Retinal Cells in Vision University of Georgia/Zoology	38,392
SARTHY, VIJAY P	Glial Function of the Vertebrate Retina University of Washington/Ophthalmology	91,660
TOMITA, TSUNEO	Cellular Origin of Transretinal Potentials Yale University/Ophthalmology and Visual Science	119,091
TRACHTENBERG, MICHAEL C	Retinal Glia: Kinetic Studies of Ion Transport University of Texas Medical Branch, Galveston/Surgery	87,845
Total Active Research Grants in this Subprogram in FY 1981: 5 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 5** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**397,045**

12. Rescue and Regeneration of Neurons in the Optic Nerve and Retina

GOLDBERG, STEPHEN J	Induction of Mammalian Retinal Regeneration University of Miami/Anatomy	60,572

Retinal and Choroidal Diseases Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
LAM, DOMINIC M	Development and Regeneration of the Vertebrate Retina Baylor College of Medicine/Ophthalmology	75,815

Total Active Research Grants in this Subprogram in FY 1981: 2
Total Research Grants in this Subprogram Receiving FY 1981 Funds: 2
Total FY 1981 Dollars Supporting Research Grants in this Subprogram: 136,387

RELATED AREAS OF RESEARCH OPPORTUNITY AND NEED

13. Noninvasive Techniques in the Study of Retinal Disorders

BARON, WILLIAM S	Human Retinal Information Processing SRI International/Psychobiology and Physiology Laboratory	97,137
DAWSON, WILLIAM W	Application of Laser Speckle to Macular Evaluation University of Florida/Ophthalmology	52,341
ENOCH, JAY M	The Etiology of Reduced Visual Function University of California, Berkeley/Optometry	217,185
HIROSE, TATSUO	Simultaneous Macula VER and ERG in Fundus Diseases Eye Research Institute of Retina Foundation/Retina Research	47,747
MC CORMICK, BRUCE H	Image Processing for Clinical Ophthalmoscopy University of Illinois, Chicago Circle/Information Engineering	386,117
POMERANTZEFF, OLEG	Optics Applied to Diagnosis and Treatment of Eye Disease Eye Research Institute of Retina Foundation/Retina Research	157,882
RIVA, CHARLES E	Flow and Diffusion of Fluorescein in the Ocular Fundus Presbyterian--University of Pennsylvania Medical Center/Ophthalmology	79,245
SINCLAIR, STEPHEN H	Blue Field Entoptic Test and Macular Circulation Presbyterian--University of Pennsylvania Medical Center/Ophthalmology	65,002
WEBB, ROBERT H	High Resolution, Wide-Angle TV Ophthalmoscope Eye Research Institute of Retina Foundation/Retina Research	33,490

Total Active Research Grants in this Subprogram in FY 1981: 9
Total Research Grants in this Subprogram Receiving FY 1981 Funds: 9
Total FY 1981 Dollars Supporting Research Grants in this Subprogram: 1,136,146

14. Tissue Acquisition and Distribution: Human Donor Eyes and Animal Models

Total Active Research Grants in this Subprogram in FY 1981: 0
Total Research Grants in this Subprogram Receiving FY 1981 Funds: 0
Total FY 1981 Dollars Supporting Research Grants in this Subprogram: 0

Total Active Research Grants in this Program in FY 1981: 423
Total Research Grants in this Program Receiving FY 1981 Funds: 352
Total FY 1981 Dollars Supporting Research Grants in this Program: 32,111,268

Retinal and Choroidal Diseases
Core Grants
Active in 1981

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
ANDERSON, DOUGLAS R Ophthalmic Research Core Facility University of Miami/Ophthalmology Miami, Florida	5 P30 EY02180-04	03/01/78- 02/28/83	$96,898	$50,387	$147,285
BRIDGES, C DAVID Vision Research Center Baylor College of Medicine/Ophthalmology Houston, Texas	5 P30 EY02520-03	07/01/79- 06/30/84	111,660	42,022	153,682
CANDIA, OSCAR A Interdisciplinary Vision Research Center (Core) Mount Sinai School of Medicine/Ophthalmology New York, New York	5 P30 EY01867-05	02/01/77- 06/30/85	74,578	34,246	108,824
DOHLMAN, CLAES H Ophthalmic Research Core Facilities Massachusetts Eye and Ear Infirmary/Ophthalmology Boston, Massachusetts	5 P30 EY01537-05	06/30/75- 08/31/81	0	0	0
ENOCH, JAY M Core Grant for Vision Research University of California, Berkeley/Optometry Berkeley, California	1 P30 EY03176-01A1	08/01/81- 07/31/86	133,025	29,213	162,238
GOLDBERG, MORTON F Ophthalmic Research Center Core Grant University of Illinois Medical Center/Ophthalmology Chicago, Illinois	5 P30 EY01792-04	09/01/78- 08/31/83	86,632	51,363	137,995
KALINA, ROBERT E Vision Research Center (Core) University of Washington/Ophthalmology Seattle, Washington	2 P30 EY01730-06	06/01/76- 05/31/86	113,092	33,409	146,501
KELLER, EDWARD L Core Grant for Vision Research Institutes of Medical Sciences San Francisco, California	2 P30 EY01186-09	06/01/76- 06/30/86	127,137	86,838	213,975
LIEBMAN, PAUL A Vision Research Center (Core) University of Pennsylvania/Institute of Neurological Sciences Philadelphia, Pennsylvania	5 P30 EY01583-07	06/01/75- 08/31/85	117,939	76,660	194,599
O'CONNOR, G RICHARD Vision Research Center (Core) University of California, San Francisco/Proctor Foundation for Research in Ophthalmology San Francisco, California	5 P30 EY01597-07	06/30/75- 06/29/83	40,478	12,548	53,026
PAK, WILLIAM L Interdisciplinary Studies of Visual Processes Purdue University, West Lafayette/Biological Sciences West Lafayette, Indiana	5 P30 EY02723-02	08/01/80- 07/31/85	54,157	30,206	84,363
PATZ, ARNALL Core Center Grant: Wilmer Ophthalmological Institute Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 P30 EY01765-06	07/01/79- 06/30/84	150,719	77,859	228,578

Retinal and Choroidal Diseases
Core Grants
Active in 1981

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
RIPPS, HARRIS Visual Sciences Research Center (Core Facility) New York University/Ophthalmology New York, New York	5 P30 EY01842-05	09/01/77– 08/31/82	103,991	45,756	149,747
SEARS, MARVIN L Vision Research Center Yale University/Ophthalmology and Visual Science New Haven, Connecticut	2 P30 EY00785-11	08/01/76– 07/31/86	117,402	63,218	180,620
STRAATSMA, BRADLEY R Vision Research Center University of California, Los Angeles/Jules Stein Eye Institute Los Angeles, California	5 P30 EY00331-15	11/01/78– 11/30/83	162,267	50,975	213,242
WEITER, JOHN J Core Grant for Vision Research Eye Research Institute of Retina Foundation Boston, Massachusetts	1 P30 EY03790-01	08/01/81– 07/31/86	58,551	40,196	98,747
WIESEL, TORSTEN N Vision Research Center (Core) Harvard University/Neurobiology Boston, Massachusetts	5 P30 EY01995-05	06/01/77– 05/31/85	103,215	123,858	227,073
Total Active Core Grants in this Program in FY 1981: 17 **Total Core Grants in this Program Receiving FY 1981 Funds: 16** **Total FY 1981 Dollars Supporting Core Grants in this Program:**			**1,651,741**	**848,754**	**2,500,495**

Retinal and Choroidal Diseases
Specialized Clinical Research Center Grants
Active in FY 1981

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
BERSON, ELIOT L Studies of Retinitis Pigmentosa and Allied Diseases Harvard University/Ophthalmology Boston, Massachusetts	5 P50 EY02014-05	07/01/77- 06/30/84	4	$148,877	$83,715	$232,592
CARR, RONALD E Clinical Center for Hereditary Retinal Degenerations New York University/Ophthalmology New York, New York	5 P50 EY02179-04	05/01/78- 04/30/82	4	105,809	47,623	153,432
Total Active Specialized Clinical Research Center Grants in this Program in FY 1981: 2						
Total Specialized Clinical Research Center Grants in this Program Receiving FY 1981 Funds: 2						
Total FY 1981 Dollars Supporting Specialized Clinical Research Center Grants in this Program:				**254,686**	**131,338**	**386,024**

Retinal and Choroidal Diseases
Institutional National Research Service Awards
Active in FY 1981

Program Director Project Title Institution/Department City, State	Grant Number	Project Period	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
ANDERSON, ROBERT E Visual Sciences Baylor College of Medicine/Ophthalmology Houston, Texas	5 T32 EY07001-07	07/01/75- 07/31/85	$113,972	$8,929	$122,901
ARMINGTON, JOHN C Correlative Methods for Studing Visual Function Northeastern University/Psychology Boston, Massachusetts	5 T32 EY07036-04	07/01/76- 06/30/81	0	0	0
EBREY, THOMAS G Physiology and Biochemistry of Vision University of Illinois, Urbana-Champaign/Physiology and Biophysics Urbana, Illinois	5 T32 EY07005-07	07/01/75- 07/31/85	96,627	7,043	103,670
GALE, JAMES L Epidemiology--Eye Diseases University of Washington/Epidemiology Seattle, Washington	5 T32 EY07017-05	07/01/75- 12/31/80	0	0	0
GOLDBERG, MORTON F Ophthalmology University of Illinois Medical Center/Ophthalmology Chicago, Illinois	5 T32 EY07038-05	07/01/77- 06/30/82	89,292	6,939	96,231
HALL, MICHAEL O Vision Research University of California, Los Angeles/Jules Stein Eye Institute Los Angeles, California	5 T32 EY07026-07	07/01/75- 06/30/85	69,973	5,282	75,255
KENYON, KENNETH R Multidisciplinary Training in Vision Research Eye Research Institute of Retina Foundation Boston, Massachusetts	1 T32 EY07074-01	07/01/81- 06/30/86	61,800	4,522	66,322
OSTROY, SANFORD E Visual Physiology and Chemistry Purdue University, West Lafayette/Biological Sciences West Lafayette, Indiana	5 T32 EY07008-07	07/01/75- 07/31/85	118,917	8,549	127,466
REID, TED W Visual Sciences Yale University/Ophthalmology and Visual Science New Haven, Connecticut	5 T32 EY07000-07	07/01/75- 06/30/85	43,594	3,413	47,007
SCHEPENS, CHARLES L Visual Sciences--Interdisciplinary Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	5 T32 EY07028-04	07/01/77- 06/30/82	0	0	0
SCHWARTZ, BERNARD Visual Sciences New England Medical Center Hospital/Ophthalmology Boston, Massachusetts	5 T32 EY07045-05	07/01/77- 06/30/82	73,135	5,509	78,644
STARK, LAWRENCE Physiological Optics University of California, Berkeley/Physiological Optics Berkeley, California	5 T32 EY07043-05	07/01/77- 06/30/82	64,798	4,796	69,594

Retinal and Choroidal Diseases
Institutional National Research Service Awards
Active in FY 1981—Continued

Program Director Project Title Institution/Department City, State	Grant Number	Project Period	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
TULUNAY-KEESEY, ULKER Visual Sciences University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	5 T32 EY07059-03	07/01/79- 06/30/84	84,938	6,795	91,733
ZADUNAISKY, JOSE A Physiology and Biochemistry of the Eye New York University/Ophthalmology New York, New York	5 T32 EY07009-07	07/01/75- 07/31/85	928	70	998
ZIMMERMAN, LORENZ E Ophthalmic Pathology American Academy of Ophthalmology/Ophthalmic Pathology San Francisco, California	5 T32 EY07040-05	07/01/77- 06/30/82	7,016	0	7,016
Total Active Institutional NRSAs in this Program in FY 1981: 15 **Total Institutional NRSAs in this Program Receiving FY 1981 Funds: 12** **Total FY 1981 Dollars Supporting Institutional NRSAs in this Program:**			**824,990**	**61,847**	**886,837**

Retinal and Choroidal Diseases
Individual National Research Service Awards
Active in FY 1981

Name of Fellow, Degree Sponsor Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Stipends Awarded	FY 1981 Other Allowances Awarded	FY 1981 Total Awarded
ANDREWS, JOHN R, PhD Hochstrasser, Robin M Picosecond Kinetics of Rhodopsin Bleaching University of Pennsylvania/Chemistry Philadelphia, Pennsylvania	5 F32 EY05322-03	08/17/80- 08/16/81	9	$0	$0	$0
ANDREWS, LARY D, PhD Anderson, Robert E Age-Related Chemical and Morphological Changes in Retina Baylor College of Medicine/Ophthalmology Houston, Texas	5 F32 EY05422-02	12/01/80- 07/15/81	9	9,033	5,000	14,033
ARIEL, MICHAEL, PhD Dowling, John E Physiological Study of Photoreceptor Transmitter Harvard University/Biology Cambridge, Massachusetts	1 F32 EY05500-01	05/23/81- 10/14/83	9	0	0	0
ATON, G BEA, PhD Litman, Burton J Structure-Function Relationships in Rhodopsin Membrane University of Virginia, Charlottesville/Biochemistry Charlottesville, Virginia	5 F32 EY05370-03	08/01/81- 07/31/82	9	17,040	5,000	22,040
BLOOMFIELD, STEWART A, PhD Dowling, John E Neuropharmacology of the Rabbit Retina Harvard University/Biological Laboratories Cambridge, Massachusetts	1 F32 EY05559-01	08/01/81- 08/31/83	10	13,380	5,000	18,380
CHAITIN, MICHAEL H, PhD Papermaster, David S Immuno-Affinity Partitioning of Retinal Membranes Yale University/Pathology New Haven, Connecticut	1 F32 EY05427-01	12/01/79- 02/28/83	10	0	0	0
COHEN, JOEL L, PhD Dowling, John E Role of Bipolar Cells in Retinal Organization Harvard University/Biology Cambridge, Massachusetts	3 F32 EY05375-02S1	09/24/81- 12/23/81	10	3,684	1,250	4,934
CZAKO-GRAHAM, MARIA, PhD Reid, Ted W Messenger RNA Translation in Retina Photoreceptor Cells Yale University/Ophthalmology and Visual Science New Haven, Connecticut	5 F32 EY05491-02	07/01/81- 06/30/82	9	14,736	5,000	19,736
D'AMORE, PATRICIA A, PhD Patz, Arnall Vasoproliferative Factor(s) in Diabetic Retinopathy Johns Hopkins University/Physiological Chemistry Baltimore, Maryland	5 F32 EY05412-02	07/01/80- 06/30/81	1	0	0	0
DACHEUX, RAMON F, II, PhD Raviola, Elio Cell Biology of Retinal Neurons Harvard University/Anatomy Boston, Massachusetts	5 F32 EY05365-02	12/01/79- 11/30/80	10	0	0	0

Retinal and Choroidal Diseases
Individual National Research Service Awards
Active in FY 1981—Continued

Name of Fellow, Degree Sponsor Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Stipends Awarded	FY 1981 Other Allowances Awarded	FY 1981 Total Awarded
ELDRED, GRAIG E, PhD Feeney-Burns, Lynette O_2-Mediated Mechanisms in Outer Segment Disposal University of Missouri, Columbia/Ophthalmology Columbia, Missouri	5 F32 EY05456-02	04/01/81- 03/31/83	8	14,040	5,000	19,040
EVANS, JUDITH A, PhD Battelle, Barbara-Anne Dopamine-Containing Neurons in Rabbit Retina National Eye Institute/Laboratory of Vision Research Bethesda, Maryland	5 F32 EY05462-02	03/01/81- 02/28/82	10	15,186	559	15,745
FLIESLER, STEVEN J, PhD Anderson, Robert E Lipid Asymmetry in Vertebrate Photoreceptor Membranes Baylor College of Medicine/Ophthalmology Houston, Texas	5 F32 EY05331-03	09/21/81- 09/20/82	9	14,736	5,000	19,736
FREDERICK, JEANNE M, PhD Hollyfield, Joe G Identification and Development of Retinal Transmitters Baylor College of Medicine/Ophthalmology Houston, Texas	1 F32 EY05508-01	11/01/80- 10/25/82	10	0	0	0
GERSHENSON, CELIA W, PhD Purple, Richard L Neural-Behavioral Correlates of Spermophilis Vision University of Minnesota, Minneapolis-St Paul/Physiology Minneapolis, Minnesota	5 F32 EY05295-02	04/22/81- 04/21/82	10	14,040	5,000	19,040
GOLIN, JOHN E, PhD Streisinger, George Genetic Control of Vision in the Zebra Fish University of Oregon/Institute of Molecular Biology Eugene, Oregon	5 F32 EY05418-03	07/01/81- 06/30/82	10	14,736	5,000	19,736
GREENBLATT, RICHARD E, PhD Fain, Gordon L A Quantitative Study of Toad Rod Membrane Currents University of California, Los Angeles/Jules Stein Eye Institute Los Angeles, California	5 F32 EY05319-03	07/28/80- 07/27/81	9	0	0	0
GRIFF, EDWIN R, PhD Steinberg, Roy H Pigment Epithelial Interactions with the Neural Retina University of California, San Francisco/Physiology San Francisco, California	5 F32 EY05447-02	01/01/81- 12/31/82	8	14,040	5,000	19,040
HALLIDAY, KAREN R, MD Bitensky, Mark W GTPases and GTP Binding Units in Enzyme Regulation Yale University/Pathology New Haven, Connecticut	1 F32 EY05544-01	02/01/81- 09/29/84	9	15,468	5,000	20,468
HOGAN, ROBERT N, PhD Johnson, Kenneth P Viral-Induced Retinal Dysplasia in Neonates University of California, San Francisco/Neurology San Francisco, California	5 F32 EY05245-02	06/19/80- 06/18/81	4	0	0	0

Retinal and Choroidal Diseases
Individual National Research Service Awards
Active in FY 1981—Continued

Name of Fellow, Degree Sponsor Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Stipends Awarded	FY 1981 Other Allowances Awarded	FY 1981 Total Awarded
IMPELMAN, DIANNE M, PhD Brooks, Barbara Visual Processing During Eye Movement University of Texas Health Science Center, San Antonio/ Physiology San Antonio, Texas	5 F32 EY05191-03	09/01/79-02/28/81	10	0	0	0
KASS, LEONARD J, PhD Barlow, Robert B, Jr Efferent Control of Retinal Sensitivity Syracuse University/Institute for Sensory Research Syracuse, New York	1 F32 EY05443-01	12/01/80-11/14/83	10	0	0	0
LASATER, ERIC M, PhD Dowling, John E Inner Plexiform Layer Interactions of Vertebrate Retina Harvard University/Biology Cambridge, Massachusetts	5 F32 EY05476-02	07/01/81-06/30/83	10	14,040	5,000	19,040
LATKER, CAROLE H, PhD Kuwabara, Toichiro Effects of Vitamin E on Ocular Angiopathy National Eye Institute/Laboratory of Vision Research Bethesda, Maryland	3 F32 EY05352-02S1	03/08/80-11/07/80	1	0	230	230
LEWIS, JAMES W, PhD Kliger, David S Photochemistry of Visual Pigments University of California, Santa Cruz/Chemistry Santa Cruz, California	5 F32 EY05438-02	10/01/80-12/31/81	9	15,468	5,000	20,468
LIOU, GREGORY I, PhD Bridges, C David Vitamin A Transport in Ocular and Other Tissues Baylor College of Medicine/Ophthalmology Houston, Texas	5 F32 EY05399-02	08/01/80-07/31/81	8	0	0	0
LODA, RICHARD T, PhD Hudson, Bruce S Site Selection Spectroscopy of Visual Analogs University of Oregon/Chemistry Eugene, Oregon	1 F32 EY05518-01	12/01/80-08/24/81	9	0	0	0
MADTES, PAUL C, JR, PhD Redburn, Dianna A The Retinal GABA-ergic System in Developing Retina University of Texas Health Sciences Center, Houston/ Neurobiology and Anatomy Houston, Texas	5 F32 EY05475-02	09/01/81-08/31/82	10	14,040	5,000	19,040
MANGEL, STUART C, PhD Dowling, John E Neurotransmitters in the Retina of the Fish Harvard University/Biology Cambridge, Massachusetts	1 F32 EY05458-01	04/01/80-11/20/83	10	0	0	0
MATTHEWS, GARY G, PhD Baylor, Denis A Cellular Neurophysiology of the Vertebrate Retina Stanford University/Neurobiology Stanford, California	5 F32 EY05308-03	09/01/80-03/31/81	9	0	0	0

Retinal and Choroidal Diseases
Individual National Research Service Awards
Active in FY 1981—Continued

Name of Fellow, Degree Sponsor Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Stipends Awarded	FY 1981 Other Allowances Awarded	FY 1981 Total Awarded
MERCURIO, ARTHUR M, PhD Robbins, Phillips W Glycosylation of Photoreceptor Membrane Proteins Massachusetts Institute of Technology Cambridge, Massachusetts	1 F32 EY05487-01	09/01/80- 05/28/84	9	0	0	0
NICOL, GRANT D, PhD Werblin, Frank Synaptic Interactions in the Outer Plexiform Layer University of California, Berkeley/Electrical Engineering and Computer Science Berkeley, California	1 F32 EY05546-01	04/01/81- 08/14/84	9	13,380	5,000	18,380
O'BRIEN, DENIS R, PhD Dowling, John E Immunohistochemical Localization of cAMP in Retina Harvard University/Biology Cambridge, Massachusetts	1 F32 EY05537-01	02/01/81- 12/31/83	10	13,380	5,000	18,380
O'DAY, PETER M, PhD Lisman, John E Sources of Calcium in *Limulus* Photoreceptor Adaptation Brandeis University/Biology Waltham, Massachusetts	5 F32 EY05275-02	06/01/80- 05/31/81	9	0	0	0
PENN, JOHN H, PhD Michl, Josef Electronic Perturbation in Rhodopsin Photochemistry University of Utah/Chemistry Salt Lake City, Utah	1 F32 EY05513-01	12/01/80- 09/13/83	9	0	0	0
PFEFFER, BRUCE A, PhD Newsome, David A Proteoglycans from the Interphotoreceptor Matrix National Eye Institute/Clinical Branch Bethesda, Maryland	5 F32 EY05482-02	07/15/81- 07/14/82	8	14,040	571	14,511
PHILP, NANCY J, PhD O'Brien, Paul J Characterization of Surface Receptors in Retinal Epithelium National Eye Institute/Laboratory of Vision Research Bethesda, Maryland	1 F32 EY05552-01	05/01/80- 06/30/84	8	13,380	0	13,380
POLANS, ARTHUR S, PhD Werblin, Frank S Synaptic Chemistry in the Retina of Tiger Salamander University of California, Berkeley/Electrical Engineering and Computer Science Berkeley, California	5 F32 EY05492-02	07/21/81- 07/20/83	10	14,040	5,000	19,040
PU, GLEN A, PhD Masland, Richard H Neurotransmitters in the IPL of the Retina Massachusetts General Hospital/Neurosurgical Service Boston, Massachusetts	5 F32 EY05248-03	01/09/80- 01/08/81	10	0	0	0
RAPP, LAURENCE M, PhD Basinger, Scott F Regional Differences in Retinal Morphology and Physiology Baylor College of Medicine/Ophthalmology Houston, Texas	5 F32 EY05493-02	05/01/81- 04/30/83	10	14,040	5,000	19,040

Retinal and Choroidal Diseases
Individual National Research Service Awards
Active in FY 1981—Continued

Name of Fellow, Degree Sponsor Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Stipends Awarded	FY 1981 Other Allowances Awarded	FY 1981 Total Awarded
SCHMIDT, JEFFREY A, PhD Lolley, Richard Ionic/Metabolic Regulation of Photoreceptor Excitability University of California, San Diego/Biology La Jolla, California	1 F32 EY05429-01	07/01/79- 10/31/81	9	0	0	0
SCHMIDT, MARIE L, PhD Sterling, Peter Microcircuitry of γ (W)-Cells in Cat Retina University of Pennsylvania/Anatomy Philadelphia, Pennsylvania	1 F32 EY05568-01	12/01/81- 11/30/84	10	17,892	5,000	22,892
SEDDON, JOHANNA M, MD Albert, Daniel M Therapeutic Outcome of Malignant Melanoma Massachusetts Eye and Ear Infirmary/Pathology, Retina Boston, Massachusetts	5 F32 EY05507-02	09/16/81- 09/15/82	3	18,787	5,000	23,787
SEIBLES, JOSETTE C, PhD Turro, Nicholas J Photoisomerization of Sterically Modified Retinals Columbia University/Chemistry New York, New York	5 F32 EY05334-02	06/04/80- 09/03/81	9	0	0	0
SELLNER, PEGGY A, PhD Masland, Richard H Pigment Epithelium and Outer Segment Phospholipids Massachusetts General Hospital/Physiology Boston, Massachusetts	1 F32 EY05580-01	09/01/81- 09/02/84	8	13,380	5,000	18,380
SPERLING, LINDA, PhD Luzzati, Vittorio Structure of Visual Pigments and Photoreceptor Membrane Gif-Sur-Yvette Laboratories-CNRS/Genetique Moleculaire Gif-Sur-Yvette, France	5 F32 EY05279-02	12/01/79- 11/30/80	9	0	0	0
TABOR, GARETH A, PhD Hollyfield, Joe G Cyclic Metabolism of Mammalian Photoreceptors Baylor College of Medicine/Ophthalmology Houston, Texas	5 F32 EY05408-02	11/01/80- 10/31/81	9	14,040	5,000	19,040
TOWNES-ANDERSON, E, PhD Raviola, Elio Cell Biology of Isolated Retinal Photoreceptors Harvard University/Anatomy Boston, Massachusetts	1 F32 EY05521-01	12/01/80- 05/31/83	9	0	0	0
ULSHAFER, ROBERT J, PhD Hollyfield, Joe G cGMP in Photoreceptor Degeneration and ROS Renewal Baylor College of Medicine/Ophthalmology Houston, Texas	5 F32 EY05506-02	09/01/81- 08/31/82	9	15,468	5,000	20,468
WALKER, STEVEN E, PhD Stell, William K Enkephalinergic Pathways in Retina University of Calgary/Morphological Calgary, Canada	5 F32 EY05520-02	09/08/81- 09/07/82	10	14,736	5,000	19,736

Retinal and Choroidal Diseases
Individual National Research Service Awards
Active in FY 1981—Continued

Name of Fellow, Degree Sponsor Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Stipends Awarded	FY 1981 Other Allowances Awarded	FY 1981 Total Awarded
WEST, CAROL S, DVM Vainisi, Samuel J Retinal Disease: A Study of Two Canine Models University of Illinois Medical Center/Ophthalmology Chicago, Illinois	5 F32 EY05298-02	08/10/80- 08/09/81	4	0	0	0
WHITE, MARY P, PhD La Vail, Matthew M Photoperiod Control of Rod Outer Segment Turnover University of California, San Francisco/Anatomy San Francisco, California	5 F32 EY05354-02	05/05/81- 05/04/83	9	14,040	5,000	19,040
WOODRUFF, MICHAEL L, PhD Fain, Gordon L Physiology and Biochemistry of Toad Photoreceptors University of California, Los Angeles/Ophthalmology Los Angeles, California	5 F32 EY05359-03	12/01/80- 11/30/81	9	14,736	5,000	19,736
WU, SAMUEL M, PhD Werblin, Frank S Pharmacology of Functional Pathways in Outer Retina University of California, Berkeley/Electrical Engineering and Computer Science Berkeley, California	5 F32 EY05356-03	03/01/81- 02/28/82	10	14,736	5,000	19,736
ZIEGLER, LAWRENCE D, PhD Hudson, Bruce S Resonance Scattering from Linear Polyenes University of Oregon/Chemistry Eugene, Oregon	5 F32 EY05417-02	11/01/80- 10/31/81	9	14,736	5,000	19,736
Total Active Individual NRSAs in this Program in FY 1981: 55 **Total Individual NRSAs in this Program Receiving FY 1981 Funds: 32** **Total FY 1981 Dollars Supporting Individual NRSAs in this Program:**				**438,478**	**137,610**	**575,988**

Retinal and Choroidal Diseases Research Career Development Awards Active in FY 1981

Awardee Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
ARMSTRONG, DONALD Peroxidase Deficiency and Peroxide Regulating Enzymes University of Colorado Health Sciences Center/Neurology Denver, Colorado	5 K04 EY00130-03	12/01/78–05/31/81	4	$16,865	$1,349	$18,214
ARMSTRONG, DONALD Peroxidase Deficiency and Peroxide Regulating Enzymes University of Florida/Ophthalmology Gainesville, Florida	7 K04 EY00236-03	06/01/81–11/30/83	4	18,646	1,492	20,138
BASINGER, SCOTT F Photoreceptor-Pigment Epithelium Interaction Baylor College of Medicine/Ophthalmology Houston, Texas	5 K04 EY00119-04	05/01/78–04/30/83	8	32,306	2,585	34,891
BESHARSE, JOSEPH C The Visual Cell--Pigment Cell Complex and Outer Segment Emory University/Anatomy Atlanta, Georgia	5 K04 EY00169-03	09/30/79–09/29/84	8	34,158	2,733	36,891
BLANKS, JANET C Retinal Differentiation, Cell Interactions, and Plasticity Estelle Doheny Eye Foundation/Ophthalmology/Anatomy Los Angeles, California	5 K04 EY00188-02	03/01/80–02/28/85	4	30,000	2,400	32,400
BURNS, MARGARET S Ion Localization in Eye Physiology: New Techniques Montefiore Hospital and Medical Center/Ophthalmology New York, New York	5 K04 EY00104-04	04/01/78–03/31/83	10	37,500	3,000	40,500
CHAKRABARTI, BIRESWAR The Structure and Interaction of Vitreous Components Eye Research Institute of Retina Foundation Boston, Massachusetts	5 K04 EY00070-05	05/01/77–04/30/82	6	37,500	3,000	40,500
CHAPPELL, RICHARD L Study of Neural Interactions of the Retina Hunter College/Biological Sciences New York, New York	5 K04 EY00040-05	09/24/76–09/23/81	9	0	0	0
CHAR, DEVRON H Uveitis and Eye Tumors: Immunodiagnosis and Monitoring University of California, San Francisco/Ophthalmology San Francisco, California	5 K04 EY00117-04	04/01/78–03/31/83	3	38,100	3,048	41,148
CORLESS, JOSEPH M X-Ray, EM and Freeze-Fracture Studies on Disk Membranes Duke University/Anatomy Durham, North Carolina	5 K04 EY00016-05	06/01/76–05/31/81	9	0	0	0
FAGER, ROGER S Cone Cell Metabolism, Visual Transduction University of Virginia, Charlottesville/Physiology Charlottesville, Virginia	5 K04 EY00142-03	12/01/78–11/30/83	9	32,301	2,584	34,885
FARBER, DEBORA B Cyclic Nucleotides in Cone Metabolism and Disease University of California, Los Angeles/Ophthalmology Los Angeles, California	5 K04 EY00144-03	12/01/78–11/30/83	4	37,637	3,011	40,648

Retinal and Choroidal Diseases Research Career Development Awards Active in FY 1981—Continued

Awardee Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
FISHER, STEVEN K Studies on the Developing and Adult Visual Systems University of California, Santa Barbara/Biological Sciences Santa Barbara, California	5 K04 EY00174-02	01/01/80–12/31/84	8	37,122	2,970	40,092
KORENBROT, JUAN I Rhodopsin and Transduction in Rod Photoreceptors University of California, San Francisco/Physiology San Francisco, California	5 K04 EY00050-04	06/01/78–05/31/83	9	37,878	3,030	40,908
LAM, DOMINIC M Synaptic Chemistry in the Visual System Baylor College of Medicine/Ophthalmology Houston, Texas	5 K04 EY00123-05	09/01/77–08/31/82	10	35,318	2,825	38,143
MASLAND, RICHARD H Neurotransmission in Mammalian Retina Massachusetts General Hospital/Neurosurgical Service Boston, Massachusetts	5 K04 EY00072-05	04/01/77–03/31/82	10	36,104	2,888	38,992
MATHIES, RICHARD A Resonance Raman Microscopy of Visual Photoreceptors University of California, Berkeley/Chemistry Berkeley, California	1 K04 EY00219-01	07/01/81–06/30/86	9	38,100	3,048	41,148
OWEN, WILLIAM G Signal Transfer Between Retinal Cells University of California, Berkeley/Biophysics and Medical Physics Berkeley, California	5 K04 EY00228-02	10/01/80–04/30/83	9	38,400	3,072	41,472
PEPPERBERG, DAVID R Visual Pigment and Photoreceptor Adaptation Purdue University, West Lafayette/Biological Sciences West Lafayette, Indiana	5 K04 EY00198-02	09/01/80–08/31/85	9	36,195	2,896	39,091
PROENZA, LUIS M Electrophysiology of Retinal Cells in Vision University of Georgia/Zoology Athens, Georgia	5 K04 EY00218-04	07/01/80–06/30/83	11	36,750	2,928	39,678
PUGH, EDWARD N, JR Mechanisms of Visual Adaptation University of Pennsylvania/Psychology Philadelphia, Pennsylvania	5 K04 EY00102-04	08/01/78–07/31/83	9	37,009	2,961	39,970
REDBURN, DIANNA A Characterization of Neurotransmitters in Retina University of Texas Health Sciences Center, Houston/Neurobiology and Anatomy Houston, Texas	5 K04 EY00088-05	07/01/77–06/30/82	10	37,920	3,034	40,954
RIVA, CHARLES E Blood Flow and Transcapillary Exchange in Eye Fundus University of Pennsylvania/Ophthalmology Philadelphia, Pennsylvania	5 K04 EY00184-04	04/01/79–03/31/83	13	37,012	2,961	39,973
SCHMIDT, SUSAN Y Biochemical Studies of Retinal Degenerations Harvard University/Ophthalmology Boston, Massachusetts	5 K04 EY00148-03	05/01/79–04/30/84	4	36,120	2,890	39,010

Retinal and Choroidal Diseases
Research Career Development Awards
Active in FY 1981—Continued

Awardee Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
WALLOW, INGOLF H Blood-Retinal Barrier in Diabetic Retinopathy University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	5 K04 EY00135-03	05/01/79– 04/30/84	1	36,000	2,880	38,880
YAU, KING-WAI Visual Transduction in Retinal Photoreceptors University of Texas Medical Branch, Galveston/Physiology and Biophysics Galveston, Texas	1 K04 EY00222-01	05/01/81– 04/30/86	9	38,070	3,046	41,116
Total Active Research Career Development Awards in this Program in FY 1981: 25						
Total Research Career Development Awards in this Program Receiving FY 1981 Funds: 23						
Total FY 1981 Dollars Supporting Research Career Development Awards in this Program:				**833,011**	**66,631**	**899,642**

Retinal and Choroidal Diseases Academic Investigator Awards Active in FY 1981

Awardee Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded
FULTON, ANNE B Signal Processing in Normal and Abnormal Retina Children's Hospital Medical Center/Ophthalmology Boston, Massachusetts	5 K07 EY00107-03	02/01/78- 01/31/81	4	$0
KLEIN, RONALD Blood-Ocular Barriers Under Stress--Experimental Diabetes University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	5 K07 EY00136-03	01/01/79- 12/31/81	1	35,000
MACLEISH, PETER R Photoreceptor Transduction and Retinal Synapse Formation Harvard University/Neurobiology Boston, Massachusetts	5 K07 EY00189-02	03/01/80- 02/28/83	9	32,230
MOORHEAD, LOUISE C Vitrectomy: Effects on Retinal Function and Structure University of Texas Health Sciences Center, Houston/Neurobiology and Anatomy Houston, Texas	5 K07 EY00140-03	01/01/79- 12/31/81	6	33,843
OSTWALD, THOMAS J Ion Transport and Na-K ATPase of Pigment Epithelium University of California, San Francisco/Ophthalmology San Francisco, California	5 K07 EY00131-03	08/01/78- 10/31/81	8	0
WILSON, MARTIN C Synaptic Transmission in the Outer Plexiform Layer University of California, Berkeley/Neurobiology Berkeley, California	5 K07 EY00159-03	07/01/79- 06/30/82	9	36,494
Total Active Academic Investigator Awards in this Program in FY 1981: 6 **Total Academic Investigator Awards in this Program Receiving FY 1981 Funds: 4** **Total FY 1981 Dollars Supporting Academic Investigator Awards in this Program:**				**137,567**

Retinal and Choroidal Diseases Research Contracts Active in FY 1981

Principal Investigator Institution/Department City, State	Contract Number	Project Period	FY 1981 Total Awarded
LATIES, ALAN M Animal Models of Hereditary Retinal Degeneration University of Pennsylvania/Ophthalmology Philadelphia, Pennsylvania	N01 EY12111	09/30/81- 09/29/86	$311,227
Diabetic Retinopathy Study:			
DAVIS, MATTHEW D University of Wisconsin, Madison/Ophthalmology (Reading Center) Madison, Wisconsin	N01 EY32130	06/01/73- 12/31/81	0
KNATTERUD, GENELL L University of Maryland, Baltimore/Social and Preventive Medicine (Coordinating Center) Baltimore, Maryland	N01 EY32129	06/01/73- 02/27/82	13,000
Total Active Contracts for the Diabetic Retinopathy Study in FY 1981: 2 **Total Contracts for the Diabetic Retinopathy Study Receiving FY 1981 Funds: 1** **Total FY 1981 Dollars Supporting Contracts for the Diabetic Retinopathy Study:**			**13,000**
Early Treatment Diabetic Retinopathy Study:			
AIELLO, LLOYD M Joslin Diabetes Foundation Boston, Massachusetts	N01 EY72145	09/30/77- 03/31/83	0
BENSON, WILLIAM Wills Eye Hospital Philadelphia, Pennsylvania	N01 EY72150	09/30/77- 03/31/83	0
BERROCAL, JOSE University of Puerto Rico Medical Sciences/Ophthalmology San Juan, Puerto Rico	N01 EY82103	12/26/77- 03/31/83	131,772
BLANKENSHIP, GEORGE University of Miami/Ophthalmology Miami, Florida	N01 EY82102	12/02/77- 03/31/83	146,324
BRESNICK, GEORGE H University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	N01 EY72139	09/30/77- 03/31/83	0
CAVENDER, JOHN C Pacific Medical Center San Francisco, California	N01 EY82101	11/28/77- 11/30/82	32,000
DAVIS, MATTHEW D University of Wisconsin, Madison/Ophthalmology (Reading Center) Madison, Wisconsin	N01 EY72148	09/30/77- 03/31/83	0
FRANK, ROBERT N Wayne State University/Ophthalmology Detroit, Michigan	N01 EY82104	01/16/78- 03/31/83	0
HODGKINSON, BERNARD J University of Southern California/Ophthalmology Los Angeles, California	N01 EY72133	09/30/77- 03/31/83	0

Retinal and Choroidal Diseases Research Contracts Active in FY 1981—Continued

Principal Investigator Institution/Department City, State	Contract Number	Project Period	FY 1981 Total Awarded
KASSOFF, AARON Albany Medical College/Ophthalmology Albany, New York	N01 EY72138	09/30/77– 03/31/83	0
KINYOUN, JAMES L University of Washington/Ophthalmology Seattle, Washington	N01 EY72134	09/30/77– 03/31/83	0
KLEIN, MICHAEL L Good Samaritan Hospital and Medical Center Portland, Oregon	N01 EY72144	09/30/77– 03/31/83	134,216
KNATTERUD, GENELL L University of Maryland, Baltimore/Social and Preventive Medicine (Coordinating Center) Baltimore, Maryland	N01 EY72147	09/30/77– 08/31/83	600,439
KNOBLOCK, WILLIAM H University of Minnesota/Ophthalmology Minneapolis, Minnesota	N01 EY72131	09/30/77– 03/31/83	0
KNUTSON, HARRY O Health Services Administration - Supply Service Center (Interagency Agreement) Perry Point, Maryland	Y01 EY90005	01/01/79– 12/31/87	12,000
KOPELOW, STANLEY University of California, Los Angeles/Ophthalmology Los Angeles, California	N01 EY72132	09/30/77– 03/31/83	177,998
LIANG, JAMES University of Illinois Medical Center/Ophthalmology Chicago, Illinois	N01 EY72137	09/30/77– 03/31/83	152,889
LITTLE, HUNTER L Zweng Memorial Retinal Research Foundation Menlo Park, California	N01 EY72140	09/30/77– 03/31/83	0
MARGHERIO, RAYMOND Michigan State University/Surgery East Lansing, Michigan	N01 EY02133	09/30/80– 03/31/83	0
REESER, FREDERICK Medical College of Wisconsin/Ophthalmology Milwaukee, Wisconsin	N01 EY72136	09/30/77– 03/31/83	0
RICE, THOMAS Johns Hopkins University/Ophthalmology Baltimore, Maryland	N01 EY72146	09/30/77– 03/31/83	0
RIEKHOF, F TEMPLE Holy Cross Hospital Salt Lake City, Utah	N01 EY02120	09/30/80– 03/31/83	153,687
WATSON, WILLIAM H Centers for Disease Control (Interagency Agreement) Atlanta, Georgia	Y01 EY80003	06/01/78– 09/30/87	300,000

Total Active Contracts for the Early Treatment Diabetic Retinopathy Study in FY 1981: 23
Total Contracts for the Early Treatment Diabetic Retinopathy Study Receiving FY 1981 Funds: 10
Total FY 1981 Dollars Supporting Contracts for the Early Treatment Diabetic Retinopathy Study: 1,841,325

Retinal and Choroidal Diseases Research Contracts Active in FY 1981—Continued

Principal Investigator Institution/Department City, State	Contract Number	Project Period	FY 1981 Total Awarded
Diabetic Retinopathy Vitrectomy Study:			
Aaberg, Thomas M Medical College of Wisconsin/Ophthalmology Milwaukee, Wisconsin	N01 EY52143	06/01/74- 06/25/84	57,316
Bartsch, Glenn University of Minnesota/Biometry (Coordinating Center) Minneapolis, Minnesota	N01 EY52147	06/26/75- 12/25/84	357,158
Blankenship, George University of Miami/Ophthalmology Miami, Florida	N01 EY52142	06/26/75- 12/25/84	131,059
Chenoweth, R G Good Samaritan Hospital and Medical Center Portland, Oregon	N01 EY62141	06/28/76- 06/27/84	83,714
Davis, Matthew D University of Wisconsin, Madison/Ophthalmology (Reading Center) Madison, Wisconsin	N01 EY52148	06/26/75- 06/25/84	149,167
Federman, Jay Wills Eye Hospital Philadelphia, Pennsylvania	N01 EY62144	06/28/76- 06/27/81	0
Irvine, Alexander R University of California, San Francisco/Ophthalmology San Francisco, California	N01 EY62139	06/28/76- 06/30/81	0
Karlin, David Cornell University Medical Center/Ophthalmology New York, New York	N01 EY62140	06/28/76- 06/27/81	0
Machemer, Robert Duke University/Ophthalmology Durham, North Carolina	N01 EY02128	09/01/80- 08/31/85	88,394
Margherio, Raymond Michigan State University/Surgery East Lansing, Michigan	N01 EY02134	09/30/80- 06/26/85	115,411
McMeel, J Wallace Massachusetts Eye and Ear Infirmary Boston, Massachusetts	N01 EY52144	06/26/75- 12/25/84	121,296
Meredith, Travis Emory University/Ophthalmology Atlanta, Georgia	N01 EY02129	08/31/80- 08/31/85	81,120
Michels, Ronald G Johns Hopkins University/Ophthalmology Baltimore, Maryland	N01 EY52145	06/26/75- 06/25/84	55,762
Myers, Frank L University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	N01 EY52140	06/26/75- 12/25/84	118,731
Peyman, Gholam A University of Illinois Medical Center/Ophthalmology Chicago, Illinois	N01 EY62142	06/28/76- 06/27/81	0

Retinal and Choroidal Diseases Research Contracts Active in FY 1981—Continued

Principal Investigator Institution/Department City, State	Contract Number	Project Period	FY 1981 Total Awarded
RYAN, STEPHEN J University of Southern California/Radiology Los Angeles, California	N01 EY52141	06/26/75– 12/25/84	179,599
VAN HEUVEN, WICHARD A Albany Medical College/Ophthalmology Albany, New York	N01 EY52146	06/26/75– 12/25/84	104,294
Total Active Contracts for the Diabetic Retinopathy Vitrectomy Study in FY 1981: 17 **Total Contracts for the Diabetic Retinopathy Vitrectomy Study Receiving FY 1981 Funds: 13** **Total FY 1981 Dollars Supporting Contracts for the Diabetic Retinopathy Vitrectomy Study:**			**1,643,021**
Total Active Contracts in this Program in FY 1981: 43 **Total Contracts in this Program Receiving FY 1981 Funds: 25** **Total FY 1981 Dollars Supporting Contracts in this Program:**			**3,808,573**

Retinal and Choroidal Diseases
NEI Intramural Research Projects
Active in FY 1981

Principal Investigator Project Title	Project Number	Sub-program	FY 1981 Professional Salaries	FY 1981 Other Direct Costs	FY 1981 Total Direct Costs
BALLINTINE, ELMER J Urokinase Central Retinal Vein Occlusion Trial	Z01 EY00022-07 CB	1	$11,807	$19,859	$31,666
BALLINTINE, ELMER J Search for Diabetic Retinopathy in Acromegaly	Z01 EY00099-03 CB	1	6,295	17,607	23,902
BATTELLE, BARBARA-ANNE Neurotransmitter Chemistry of Retinal Neurons	Z01 EY00066-04 LVR	10	16,377	54,760	71,137
CARTER-DAWSON, L Role of Vitamin A in Maintenance and Development of Ocular Tissues	Z01 EY00032-05 LVR	7	38,617	177,081	215,698
CHADER, GERALD J Metabolism of the Retina and Pigment Epithelium	Z01 EY00124-01 LVR	8	27,768	54,760	82,528
DE MONASTERIO, FRANCISCO M Electrophysiological and Psychophysical Evaluation of Retinal Disorders	Z01 EY00059-03 CB	13	31,819	61,571	93,390
DE MONASTERIO, FRANCISCO M Retinal Function in Posterior Uveitis	Z01 EY00061-03 CB	2	16,114	22,931	39,045
DE MONASTERIO, FRANCISCO M Acquired Color Vision Deficiencies: Mechanisms and Diagnosis	Z01 EY00063-03 CB	10	21,691	17,607	39,298
DUDLEY, PETER Retina Lipid Metabolism: Correlation with Circadian Rhythm and Effect of Light	Z01 EY00041-03 LVR	9	20,548	54,760	75,308
GAASTERLAND, DOUGLAS E Radioiodinated Chloroquine Analog for Diagnosis of Ocular Melanoma	Z01 EY00143-08 CB	3	4,847	10,239	15,086
GERY, IGAL Macrophage Interactions with Ocular Cells and their Components	Z01 EY00023-03 LVR	2	23,882	89,064	112,946
GERY, IGAL Immune Responses to Ocular Antigens	Z01 EY00069-04 LVR	2	34,689	69,703	104,329
GUNKEL, RALPH D Research in Methods of Evaluating Visual Processes	Z01 EY00006-10 CB	10	26,134	31,347	57,481
HESS, HELEN H Biochemistry of Retinal and Pigmented Epithelium in Health and Disease	Z01 EY00135-09 CB	4	36,633	54,800	91,433
HIGGINS, KENT E Spatial Contrast Sensitivity Studies in Retinal Disease	Z01 EY00121-01 CB	13	9,723	32,225	41,948
KAISER-KUPFER, MURIEL I Ophthalmologic Screening for Tamoxifen Toxicity to the Eye	Z01 EY00018-07 CB	3	7,350	17,607	24,957
KAISER-KUPFER, MURIEL I Visual Function and Ocular Pigmentation in Albinism	Z01 EY00060-05 CB	4	7,350	17,607	24,957
KAISER-KUPFER, MURIEL I The Diagnosis, Pathogenesis, and Treatment of Gyrate Atrophy of the Choroid and Retina	Z01 EY00083-04 CB	4	16,515	17,607	34,122
LIU, YUNG PIN/CHADER, GERALD J Cyclic Nucleotides and Vision	Z01 EY00148-08 LVR	4	34,423	84,406	118,829

Retinal and Choroidal Diseases
NEI Intramural Research Projects
Active in FY 1981—Continued

Principal Investigator Project Title	Project Number	Sub-program	FY 1981 Professional Salaries	FY 1981 Other Direct Costs	FY 1981 Total Direct Costs
MEYERS, SANFORD M Septic Chorioretinitis in Animals	Z01 EY00118-01 CB	2	33,684	17,607	51,291
MEYERS, SANFORD M Laser Instrumentation for Vitreous Surgery	Z01 EY00120-01 CB	6	19,903	17,607	37,510
NELSON, RALPH Electrophysiology and Morphology of Mammalian and Avian Retinas	Z01 EY00005-09 LVR	10	86,276	70,942	157,218
NEWSOME, DAVID A Biochemistry and Biology of Normal and Pathologic Retinochoroidal Tissues	Z01 EY00097-03 CB	8	8,037	41,212	49,249
NEWSOME, DAVID A Clinical and Laboratory Studies in Macular and Retinal Degenerations	Z01 EY00098-03 CB	5	35,913	38,978	74,891
NUSSENBLATT, ROBERT Immune Functions in Ocular Diseases of Obscure Etiology	Z01 EY00075-04 CB	2	12,232	17,607	29,839
NUSSENBLATT, ROBERT HLA, ABO, and B-Cell Alloantigens and Ocular Inflammatory Disease	Z01 EY00092-03 CB	2	4,148	17,607	21,755
NUSSENBLATT, ROBERT Immune Mechanisms in Experimental Autoimmune Uveitis	Z01 EY00094-03 CB	2	9,795	15,474	25,269
NUSSENBLATT, ROBERT B Cyclosporin A Therapy in Uveitis	Z01 EY00115-01 CB	2	6,035	18,311	24,346
NUSSENBLATT, ROBERT B Double Masked Treatment of Ocular Toxoplasmosis	Z01 EY00116-01 CB	2	8,239	18,200	26,439
O'BRIEN, PAUL J The Cell Biology of the Vertebrate Retina	Z01 EY00015-16 LVR	9	35,036	70,838	105,874
O'BRIEN, PAUL J The Biochemistry of Normal and Dystrophic Retinas	Z01 EY00016-14 LVR	4	15,359	62,180	77,539
PURO, DONALD G Neuropharmacology of the Retina	Z01 EY00125-01 LVR	10	16,377	68,480	84,857
ROBISON, W GERALD, JR Ultrastructure and Function of the Pigment Cells of the Eye	Z01 EY00149-08 LVR	8	40,770	177,081	217,851
RODRIGUES, MERLYN M Histopathologic Studies of Animal Models of Human Ocular Diseases	Z01 EY00114-01 CB	2	3,744	28,167	31,911
SALINAS-CARMONA, MARIO Suppression of Retinoblastoma Proliferation by Human Soluble Lymphocyte Factors	Z01 EY00107-02 CB	2	12,717	19,957	32,674
SHICHI, HITOSHI The Biochemistry of the Visual Process	Z01 EY00004-07 LVR	9	19,440	94,459	113,899
SHICHI, HITOSHI The Biochemical Pharmacology of the Eye	Z01 EY00007-07 LVR	7	24,300	67,249	91,549
WIGGERT, BARBARA Vitamin A and Ocular Tissues	Z01 EY00070-04 LVR	4	58,184	75,886	134,070

Retinal and Choroidal Diseases
NEI Intramural Research Projects
Active in FY 1981—Continued

Principal Investigator Project Title	Project Number	Sub-program	FY 1981 Pro-fessional Salaries	FY 1981 Other Direct Costs	FY 1981 Total Direct Costs
Total Intramural Research Projects in this Program Receiving FY 1981 Funds: 38					
Total FY 1981 Dollars Supporting Intramural Research Projects in this Program:			**842,771**	**1,843,383**	**2,686,091**

II. CORNEAL DISEASES

SUBPROGRAMS/AREAS:

1. External Ocular Infections and Inflammatory Diseases
   - A. Herpes Simplex
   - B. Herpes Zoster
   - C. Adenovirus and Enterovirus
   - D. Bacterial and Fungal Keratitis
   - E. Chlamydial Keratoconjunctivitis
   - F. Chronic Blepharitis
   - G. Other Infections
2. Ocular Surface Problems
   - A. Tear Film and Its Abnormalities
   - B. Ocular Surface Disorders
   - C. Drug Delivery and Toxicity
3. Refractive Problems and Contact Lenses
4. Corneal Edema, Endothelial Dysfunction, Dystrophies, and Inherited Diseases
   - A. Endothelial Tissue Culture, Replacement, and Repair
   - B. In Vivo Evaluation of Corneal Epithelial and Endothelial Membrane Function
   - C. In Vivo Morphologic Evaluation—Specular Microscopy
   - D. Endothelial and Epithelial Transport Processes (Corneal Hydration and Edema)
   - E. Stromal Swelling and Transparency
   - F. Normal Corneal Development
   - G. Corneal Dystrophies, Inherited Disorders, and Developmental Anomalies
5. Corneal Transplantation and Stromal Wound Healing
   - A. Inflammation and Repair
   - B. Corneal Transplantation

Corneal Diseases
Research Grants Active in FY 1981, Alphabetical Listing

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
ALBERT, DANIEL M New Antiviral Nucleosides for Ocular and Other Herpes Massachusetts Eye and Ear Infirmary/Howe Laboratory Boston, Massachusetts	5 R01 EY02268-04	01/01/78-12/31/82	1(A)	$163,897	$16,993	$180,890
ALLANSMITH, MATHEA R Ocular Anaphylaxis Eye Research Institute of Retina Foundation/Cornea Research Boston, Massachusetts	5 R01 EY02099-05	09/01/77-08/31/84	2(C)	74,346	51,691	126,037
ALLANSMITH, MATHEA R The Secretory IgA System of the Eye Eye Research Institute of Retina Foundation Boston, Massachusetts	5 R01 EY02882-03	12/01/78-11/30/83	2(B)	61,314	35,504	96,818
ALPER, ROBERT Corneal Structural Glycoproteins University City Science Center/Biochemistry Philadelphia, Pennsylvania	5 R01 EY03506-02	07/01/80-06/30/83	4(E)	54,614	46,258	100,872
ALVARADO, JORGE A Corneal Endothelial Replacement University of California, San Francisco/Ophthalmology San Francisco, California	1 R01 EY03903-01	09/01/81-08/31/84	4(A)	67,800	19,158	86,958
ANDERSON, ETHEL I The Anterior Eye: State and Function of Thiol Groups Columbia University/Ophthalmology New York, New York	5 R01 EY00699-11	06/01/79-05/31/82	2(B)	78,950	42,633	121,583
ANDERSON, JANET A Characterization of Tear Protease Inhibitors University of California, Irvine/Ophthalmology Irvine, California	5 R01 EY02843-03	02/01/79-01/31/82	2(A)	37,969	12,816	50,785
AUERBACH, ROBERT Angiogenesis in the Mouse Eye University of Wisconsin, Madison/Zoology Madison, Wisconsin	5 R01 EY03243-03	09/30/79-09/29/82	2(B)	48,010	18,631	66,641
BALLOW, MARK Mediators of Inflammation in Tear Secretions University of Connecticut Health Center/Pediatrics Farmington, Connecticut	5 R01 EY02036-05	09/01/80-08/31/83	2(B)	48,347	20,789	69,136
BARBER, JOHN C Tissue Stabilized Alloplastic Corneal Prosthesis University of Texas Medical Branch, Galveston/ Ophthalmology Galveston, Texas	2 R01 EY02610-03	09/01/78-12/31/82	5(B)	40,166	16,089	56,255
BARZA, MICHAEL J Ocular Penetration of Antibiotics in a Model New England Medical Center Hospital Boston, Massachusetts	2 R01 EY01517-07	08/15/78-07/31/84	1(D)	134,497	24,493	158,990
BAUM, JULES L Biochemistry of Normal and Dystrophic Corneas in Culture Tufts University/Ophthalmology Boston, Massachusetts	7 R01 EY04034-01	06/01/81-05/31/84	4(D)	121,070	67,799	188,869

Corneal Diseases
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
BERK, RICHARD S *Pseudomonas* Eye Infections--An Experimental Model Wayne State University/Immunology and Microbiology Detroit, Michigan	2 R01 EY01935-04A1	08/01/77–11/30/83	1(D)	43,566	14,280	57,846
BERMAN, MICHAEL B Cellular and Biochemical Bases of Corneal Ulceration Emory University/Ophthalmology Atlanta, Georgia	7 R01 EY03879-01	02/01/81–01/31/84	2(B)	94,784	52,514	147,298
BEUERMAN, ROGER W Corneal Neurobiology Louisiana State University Medical Center, New Orleans/ Ophthalmology New Orleans, Louisiana	7 R01 EY04074-01	07/01/81–06/30/84	2(B)	95,438	19,260	114,698
BINDER, PERRY S Refractive Corneal Surgery University of California, San Diego/Surgery La Jolla, California	5 R01 EY03585-02	09/30/80–09/29/83	3	93,344	18,389	111,733
BOURNE, WILLIAM M Studies of the Cornea Mayo Foundation/Ophthalmology Rochester, Minnesota	3 R01 EY02037-03S1	08/01/78–11/30/81	4(B)	11,408	4,366	15,774
BROMBERG, BARRY B Autonomic Control of Lacrimal Gland Function Louisiana State University--University of New Orleans/ Biological Sciences New Orleans, Louisiana	7 R01 EY04158-01	09/30/81–09/29/82	2(A)	33,832	11,165	44,997
BROWN, STUART I Collagenolytic Systems in Normal and Diseased Corneas Eye and Ear Hospital of Pittsburgh/Ophthalmology Pittsburgh, Pennsylvania	5 R01 EY01490-07	02/15/79–01/31/83	2(B)	40,401	15,313	55,714
BROWN, STUART I Structural Macromolecules: Normal and Diseased Cornea Eye and Ear Hospital of Pittsburgh/Ophthalmology Pittsburgh, Pennsylvania	2 R01 EY01817-04	09/01/77–01/31/84	4(G)	108,490	36,133	144,623
CALKINS, JOSEPH L Holographic Stress-Testing of the Surgical Cornea Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY01312-05	08/01/78–11/30/80	5(B)	0	0	0
CAVANAGH, H DWIGHT Biochemical Control of Growth in Corneal Epithelium Emory University/Ophthalmology Atlanta, Georgia	5 R01 EY01920-06	06/30/79–06/30/82	2(B)	78,329	43,707	122,036
CENTIFANTO, YSOLINA M HSV Strain Specificity and Ocular Disease Louisiana State University Medical Center, New Orleans/ Ophthalmology New Orleans, Louisiana	5 R01 EY02389-03	04/01/79–03/31/84	1(A)	60,406	14,508	74,914
CHANDLER, JOHN W, JR Immunopathology and Therapy of Corneal Disease Swedish Hospital Medical Center/Ophthalmology Seattle, Washington	2 R01 EY02673-04	03/01/78–02/29/84	5(B)	66,556	14,989	81,545

Corneal Diseases
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
CHANDLER, JOHN W, JR Herpetic Keratitis: Early Virus Neuron Interactions Swedish Hospital Medical Center/Ophthalmology Seattle, Washington	2 R01 EY02902-04	06/09/78- 06/30/86	1(A)	44,384	9,324	53,708
CHURCH, ROBERT L Genetic Dissection of Ocular Connective Tissue W. Alton Jones Cell Science Center Lake Placid, New York	5 R01 EY04066-02	07/01/80- 06/30/85	4(F)	67,083	41,423	108,506
CINTRON, CHARLES Macromolecular Morphogenesis of Corneal Tissues Eye Research Institute of Retina Foundation/Cornea Research Boston, Massachusetts	5 R01 EY01199-08	02/01/77- 01/31/85	4(E)	96,099	62,336	158,435
CLEVELAND, PATRICK H Immunodiagnosis of Ocular Herpes Virus Infections University of California, San Diego/Surgery La Jolla, California	5 R01 EY03093-03	09/30/79- 09/29/82	1(A)	62,234	13,218	75,452
CONRAD, GARY W Fibroblast Differentiation During Eye Development Kansas State University/Division of Biology Manhattan, Kansas	5 R01 EY00952-10	04/01/78- 03/31/83	4(F)	51,058	21,140	72,198
DARTT, DARLENE A Mechanism of Lacrimal Gland Secretion Tufts University/Physiology Boston, Massachusetts	1 R01 EY03717-01	06/01/81- 05/31/84	2(A)	62,066	27,065	89,131
DAVIS, STARKEY D Experimental *Pseudomonas* Keratitis Medical College of Wisconsin/Pediatrics Milwaukee, Wisconsin	3 R01 EY01665-06S1	08/01/78- 10/31/81	1(D)	816	6,520	7,336
DAVISON, PETER F The Collagens in Lamellar Tissues of the Eye Boston Biomedical Research Institute/Fine Structure Boston, Massachusetts	5 R01 EY02213-03	03/01/79- 02/28/82	5(A)	75,145	44,663	119,808
DAWSON, CHANDLER R Analysis of Problems in Ocular Inflammatory Diseases University of California, San Francisco/Proctor Foundation for Research in Ophthalmology San Francisco, California	2 R01 EY00427-12	03/01/76- 11/30/82	1(E)	134,847	39,509	174,356
DAWSON, CHANDLER R Pathogenesis and Early Diagnosis of Eye Inflammations University of California, San Francisco/Proctor Foundation for Research in Ophthalmology San Francisco, California	5 R01 EY01198-06	07/01/78- 06/30/81	1(A)	0	0	0
DAWSON, CHANDLER R The Conjunctiva and Its Diseases University of California, San Francisco/Proctor Foundation for Research in Ophthalmology San Francisco, California	1 R01 EY03858-01	09/01/81- 08/31/85	1(E)	86,847	25,329	112,176
DIKSTEIN, SHABTAY GABA and the Rabbit Corneal Endothelial Pump Hebrew University of Jerusalem/Cell Pharmacology Unit Jerusalem, Israel	5 R01 EY02919-03	03/01/79- 12/31/82	4(D)	32,737	0	32,737

Corneal Diseases
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
DOANE, MARSHALL G The Interaction of Lids and Tears in Corneal Wetting Eye Research Institute of Retina Foundation/Cornea Research Boston, Massachusetts	5 R01 EY01846–05	02/01/79–01/31/82	2(A)	52,101	35,588	87,689
EDELHAUSER, HENRY F Pathogenesis of Corneal Edema After Intraocular Surgery Medical College of Wisconsin/Physiology Milwaukee, Wisconsin	5 R01 EY00933–09	05/01/79–04/30/82	4(D)	75,867	37,839	113,706
EIFERMAN, RICHARD A Comparative Inhibition of Tissue Collagenases University of Louisville/Biochemistry Louisville, Kentucky	5 R01 EY02538–03	12/01/78–11/30/82	2(B)	8,153	17,809	25,962
ELIASON, JOSEPH A Isolation of Corneal Epithelial Angiogenic Factors Stanford University/Surgery Stanford, California	5 R23 EY03770–02	09/01/80–06/30/82	2(B)	31,504	18,272	49,776
ELLIOTT, GERALD F X-Ray and Neutron Diffraction Studies of Corneal Stroma Open University Bletchley, United Kingdom	5 R01 EY02710–03	01/01/79–07/31/82	4(E)	25,634	0	25,634
FARRELL, RICHARD A Light Scattering Studies of Ocular Tissues Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY01019–09	06/01/79–05/31/82	4(E)	63,245	40,512	103,757
FARRIS, ROBERT L Tear Analysis Columbia University/Ophthalmology New York, New York	2 R01 EY02841–02A1	12/01/78–11/30/83	2(A)	67,612	34,414	102,026
FISCHBARG, JORGE Bioelectrical Properties of Corneal Endothelium Columbia University/Ophthalmology New York, New York	5 R01 EY01080–09	05/01/79–04/30/84	4(D)	130,963	71,797	202,760
FORSTER, RICHARD K Management of Fungal Keratitis and Endophthalmitis University of Miami/Ophthalmology Miami, Florida	5 R01 EY00674–10	05/01/78–04/30/83	1(D)	58,365	30,350	88,715
FOSTER, CHARLES S Immunopathology in Ulcerative Keratitis Eye Research Institute of Retina Foundation/Corneal Research Boston, Massachusetts	5 R01 EY03063–03	07/01/79–06/30/82	5(A)	78,015	53,965	131,980
FRANKLIN, RUDOLPH M Secretory Immune System--Relationship to Ocular Disease Louisiana State University Medical Center, New Orleans/ Ophthalmology New Orleans, Louisiana	5 R01 EY03028–04	09/30/78–09/29/83	2(B)	64,194	15,932	80,126
FRIEDLAENDER, MITCHELL H Immunopathology of Hypersensitivity Reactions in the Eye University of California, San Francisco/Proctor Foundation for Research in Ophthalmology San Francisco, California	5 R01 EY02502–04	07/01/78–06/30/83	2(B)	67,727	20,685	88,412

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FUNDERBURGH, JAMES L Proteoglycans in Normal and Scarred Corneas Swedish Hospital Medical Center/Ophthalmology Seattle, Washington	5 R01 EY02976-02	08/01/80- 07/31/83	5(A)	50,790	12,673	63,463
GALBAVY, EDWARD J The Characterization of Collagen in Ocular Tissue Boston Biomedical Research Institute/Boston Biomedical Research Institute Boston, Massachusetts	1 R23 EY03865-01	08/01/81- 07/31/84	5(A)	34,665	15,789	50,454
GEBHARDT, BRYAN M Suppression of Cornea Allograft Rejection Louisiana State University Medical Center, New Orleans/ Ophthalmology New Orleans, Louisiana	5 R01 EY03150-03	07/01/79- 06/30/82	5(B)	70,370	17,593	87,963
GELENDER, HENRY Prospective Evaluation of Radial Keratotomy (PERK) University of Miami/Ophthalmology Miami, Florida	1 R01 EY03764-01	02/01/81- 01/31/86	3	37,521	16,488	54,009
GILBARD, JEFFREY P Drying of the Ocular Surface Eye Research Institute of Retina Foundation/Cornea Research Boston, Massachusetts	5 R01 EY03373-02	07/01/80- 06/30/83	2(A)	27,012	13,295	40,307
GIPSON, ILENE K Cell Motility and Adhesion in Corneal Wound Healing Eye Research Institute of Retina Foundation/Histology Boston, Massachusetts	5 R01 EY03306-03	08/01/79- 07/31/85	2(B)	61,741	41,267	103,008
GOSPODAROWICZ, DENIS J Regeneration of Corneal Epithelium and Endothelium University of California, San Francisco/Cancer Research Institute San Francisco, California	2 R01 EY02186-04	12/01/77- 11/30/85	2(B)	128,014	31,162	159,176
GOSPODAROWICZ, DENIS J Corneal Endothelia Transplant: Clinical Implication University of California, San Francisco/Cancer Research Institute San Francisco, California	5 R01 EY02930-02	05/01/79- 04/30/81	5(B)	0	0	0
GRAY, ROBERT D Covalent Control of Cornea-Damaging Collagenase University of Louisville/Biochemistry Louisville, Kentucky	5 R01 EY00969-08	09/30/76- 06/30/81	5(A)	0	0	0
GRAYSTON, J THOMAS Prevention of Trachoma and Related Infections University of Washington/Pathobiology Seattle, Washington	5 R01 EY00219-20	12/01/73- 11/30/82	1(E)	114,739	38,647	153,386
GREEN, MARY T Recurrent Ocular Herpes Baylor College of Medicine/Ophthalmology Houston, Texas	5 R01 EY02724-03	12/01/78- 11/30/81	1(A)	47,959	17,727	65,686
GREENE, BRUCE M Onchocerciasis: Immunologically Mediated Eye Disease Case Western Reserve University/Medicine Cleveland, Ohio	5 R01 EY03318-03	07/25/79- 06/30/83	1(G)	76,824	37,834	114,658

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GREGORY, JOHN D Biosynthesis and Turnover of Proteoglycans in Cornea Rockefeller University/Biochemistry New York, New York	2 R01 EY02600-04	08/01/78- 07/31/84	4(G)	48,370	24,678	73,048
GROSS, JEROME Corneal Collagenase: Cellular and Biochemical Control Massachusetts General Hospital/Development Biological Laboratories Medical Service Boston, Massachusetts	5 R01 EY02252-04	01/01/78- 12/31/82	2(B)	55,404	18,116	73,520
HALL, JOAN M The Nature and Sequence of Ocular Immune Response University of California, San Francisco/Proctor Foundation for Research in Ophthalmology San Francisco, California	5 R01 EY01182-07	07/01/77- 06/30/84	1(D)	71,306	22,375	93,681
HARRIS, THOMAS M Ocular Basement Membrane Changes in Corneal Pathology Virginia Commonwealth University/Anatomy Richmond, Virginia	5 R01 EY02991-03	04/01/79- 03/31/82	5(A)	35,847	19,956	55,803
HASCHKE, RICHARD H Retrograde Axonal Transport in the Visual System University of Washington/Anesthesiology Seattle, Washington	5 R01 EY01756-06	05/01/79- 04/30/82	1(A)	124,955	42,485	167,440
HAZLETT, LINDA D Alteration with Age of Resistance to Eye Infections Wayne State University/Anatomy Detroit, Michigan	5 R01 EY02986-03	04/01/79- 03/31/84	1(D)	40,140	12,512	52,652
HENDRICKS, ROBERT L Localized Immune Defect in Ocular Herpetic Recurrences University of Illinois Medical Center/Ophthalmology Chicago, Illinois	1 R01 EY03188-01A1	03/01/81- 02/29/84	1(A)	55,141	33,636	88,777
HERP, ANTHONY Protease Inhibition in Corneal Ulcers New York Medical College/Biochemistry Valhalla, New York	5 R01 EY03433-02	07/01/80- 06/30/83	5(B)	46,167	32,125	78,292
HILL, JAMES M Iontophoresis of Antivirals to Herpes Eye Infections Medical College of Georgia/Cell and Molecular Biology Augusta, Georgia	7 R01 EY04169-01	07/01/81- 06/30/83	1(A)	60,147	25,262	85,409
HILL, RICHARD M The Corneal Environment Ohio State University/Physiological Optics Columbus, Ohio	2 R01 EY02383-04	04/01/78- 03/31/84	2(A)	38,140	10,679	48,819
HIRST, LAWRENCE W Assessment of Corneal Endothelium in Vivo Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY02476-03	09/01/78- 03/31/83	4(B)	0	0	0
HOLLY, FRANK J Basic and Clinical Studies of Lacrimal Surfactant Texas Tech University/Ophthalmology and Visual Sciences Lubbock, Texas	2 R01 EY03002-04	09/01/78- 06/30/84	2(A)	96,845	21,438	118,283

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HONG, BOR-SHYUE Structure and Function of a Distinct Collagen in Cornea Texas Tech University/Ophthalmology and Visual Sciences Lubbock, Texas	5 R01 EY03337-02	09/01/80- 08/31/83	4(E)	58,754	15,864	74,618
HULL, DAVID S Drugs, Pathologic Conditions, and Cornea Endothelium Medical College of Georgia/Ophthalmology Augusta, Georgia	2 R01 EY02386-04	04/01/78- 03/31/84	4(D)	38,466	11,188	49,654
JAKOBIEC, FREDERICK A B- and T-Lymphocyte Subpopulations in Ocular Diseases Cornell University Medical Center/Ophthalmology New York, New York	2 R01 EY03357-03	08/01/79- 07/31/86	2(B)	146,258	39,871	186,129
JAWETZ, ERNEST Viral Keratoconjunctivitis and Related Disorders University of California, San Francisco/Microbiology and Immunology San Francisco, California	5 R01 EY00186-26	03/01/76- 11/30/81	1(E)	0	0	0
JOHNSON, MARY K Role of Microbial Cytolysins in Ocular Infections Tulane University of Louisiana/Microbiology and Immunology New Orleans, Louisiana	2 R01 EY00424-13	08/01/78- 09/29/84	1(D)	70,202	29,094	99,296
KAO, WINSTON W Biosynthesis of Collagen in Embryonic Chick Cornea Eye and Ear Hospital of Pittsburgh/Ophthalmology Pittsburgh, Pennsylvania	5 R01 EY02869-03	02/01/79- 01/31/82	5(A)	49,475	18,702	68,177
KAUFMAN, HERBERT E Corneal Preservation and Keratoplasty Louisiana State University Medical Center, New Orleans/ Ophthalmology New Orleans, Louisiana	5 R01 EY02580-04	01/01/78- 12/31/82	3	95,051	23,263	118,314
KAUFMAN, HERBERT E Ocular Herpes Simplex Louisiana State University Medical Center, New Orleans/ Ophthalmology New Orleans, Louisiana	5 R01 EY02672-04	02/01/78- 02/28/85	1(A)	127,558	31,877	159,435
KENNEY, CRISTINA M Descemet's Membrane in Corneal Disorders University of California, Davis/Human Anatomy Davis, California	5 R01 EY03448-02	07/01/80- 06/30/83	4(G)	33,219	10,298	43,517
KLINTWORTH, GORDON K Experimental Approach to Diseases of the Cornea Duke University/Pathology Durham, North Carolina	2 R01 EY00146-10	02/01/78- 01/31/86	4(G)	152,542	71,114	223,656
KLYCE, STEPHEN D Transport Processes Across the Corneal Epithelium Louisiana State University Medical Center, New Orleans/ Ophthalmology New Orleans, Louisiana	2 R01 EY03311-03	07/01/79- 06/30/86	4(B)	99,567	23,024	122,591

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KREGER, ARNOLD S Pathogenesis of Bacterial Infections of the Cornea Wake Forest University/Microbiology and Immunology Winston-Salem, North Carolina	5 R01 EY01104-07	03/01/76-12/31/80	5(A)	0	0	0
LAIBSON, PETER R Prospective Evaluation of Radial Keratotomy (PERK) Wills Eye Hospital and Research Institute/Cornea Service Philadelphia, Pennsylvania	1 R01 EY03753-01	02/01/81-01/31/86	3	42,513	16,192	58,705
LAING, RONALD A Studies of the Corneal Endothelium of the Eye Boston University/Ophthalmology Boston, Massachusetts	5 R01 EY01227-06	07/01/76-06/30/83	4(C)	72,059	54,070	126,129
LAING, RONALD A Metabolic Studies of Corneal Tissues Boston University/Ophthalmology Boston, Massachusetts	5 R01 EY01990-03	09/01/77-02/28/82	4(C)	0	0	0
LANDE, MAURICIO A Studies on Keratocytes in Culture Wayne State University/Anatomy Detroit, Michigan	2 R01 EY02339-04	01/01/78-12/31/83	5(A)	61,520	17,204	78,724
LANGHAM, MAURICE E The Influence of DEC on Leucocytic Adherence to O.v. mf Johns Hopkins University/Ophthalmology Baltimore, Maryland	1 R01 EY03806-01	09/30/81-09/29/84	1(G)	122,166	52,483	174,649
LEIBOWITZ, HOWARD M Studies in Corneal Transplantation Boston University/Ophthalmology Boston, Massachusetts	5 R01 EY00544-12	09/01/78-08/31/83	5(B)	119,697	65,474	185,171
LEIBOWITZ, HOWARD M Development of Functional Biopolymers for the Eye Boston University/Ophthalmology Boston, Massachusetts	5 R01 EY02978-03	04/01/79-03/31/82	5(B)	72,338	38,339	110,677
LEMP, MICHAEL A Effect of Systemic Drugs on Tear Production Georgetown University/Ophthalmology Washington, D.C.	5 R01 EY02228-03	08/01/78-07/31/81	2(C)	0	0	0
LIM, JONG J Endothelial Cell Adhesion and Transport Mechanisms Columbia University/Ophthalmology New York, New York	5 R01 EY02104-02	06/01/80-05/31/83	4(D)	82,808	42,030	124,838
LINDSTROM, RICHARD L Prospective Evaluation of Radial Keratotomy (PERK) University of Minnesota, Minneapolis-St Paul/Ophthalmology Minneapolis, Minnesota	1 R01 EY03767-01	02/01/81-01/31/86	3	48,663	11,394	60,057
LINSENMAYER, THOMAS F Corneal Stroma: Synthesis and Assembly of Collagens Massachusetts General Hospital/Medical Service Boston, Massachusetts	5 R01 EY02261-04	01/01/78-12/31/82	5(A)	76,211	25,274	101,485

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MACDONALD, A BRUCE Ocular Immunology and Pathogenesis of Trachoma University of Massachusetts, Amherst/Microbiology Amherst, Massachusetts	5 R01 EY03094-03	04/01/79-03/31/84	1(E)	60,659	36,592	97,251
MACMILLAN, ALAN D Familial Dystrophic and Dysplastic Eye Diseases University of California, Davis/Surgery Davis, California	5 R23 EY02222-03	04/01/78-03/31/81	4(G)	0	0	0
MANDELL, ROBERT B Oxygen Requirement for Continuous-Wear Contact Lenses University of California, Berkeley/Optometry Berkeley, California	5 R01 EY03215-02	04/01/80-03/31/83	3	55,721	17,274	72,995
MANSKI, WLADYSLAW J Effects of Antiocular Antibodies on Ocular Tissues Columbia University/Ophthalmology New York, New York	5 R01 EY00198-23	05/01/79-04/30/83	5(B)	66,973	36,165	103,138
MASTERS, BARRY R Redox States of Normal/Pathological Corneal Conditions University of Pennsylvania/Johnson Foundation for Medical Physics Philadelphia, Pennsylvania	2 R01 EY02421-04	05/01/78-04/30/84	2(B)	83,950	43,239	127,189
MAURICE, DAVID M Control of Corneal Hydration Stanford University/Surgery Stanford, California	2 R01 EY00431-13	02/01/78-06/30/84	4(A)	194,548	114,959	309,507
MC CAREY, BERNARD E Refractive Keratoplasty Emory University/Ophthalmology Atlanta, Georgia	1 R01 EY03696-01	05/01/81-04/30/84	3	103,455	27,629	131,084
MC CULLEY, JAMES P Meibomian Keratoconjunctivitis University of Texas Health Sciences Center, Dallas/Ophthalmology Dallas, Texas	3 R01 EY03650-01S1	08/01/80-11/30/81	1(F)	21,881	8,096	29,977
METCALF, JOSEPH F Immunocytochemical Studies of Herpetic Keratitis University of California, Berkeley/Optometry Berkeley, California	5 R01 EY03949-02	03/01/81-06/30/82	1(A)	51,880	15,743	67,623
MEYER, ROGER F Clinical Potential of Cultured Corneal Endothelium University of Michigan, Ann Arbor/Ophthalmology Ann Arbor, Michigan	1 R01 EY03573-01	02/01/81-01/31/84	2(B)	69,711	31,906	101,617
MEYERS-ELLIOTT, ROBERTA H Mechanism of Corneal Inflammation in Herpes Keratitis University of California, Los Angeles/Jules Stein Eye Institute Los Angeles, California	2 R01 EY00394-12A2	04/01/76-11/30/83	1(A)	98,625	29,465	128,090
MEYERS, ROBERTA L HLA and Immune Factors in Ocular Herpes University of California, Los Angeles/Ophthalmology Los Angeles, California	5 R01 EY02646-02	09/01/78-05/31/81	1(A)	0	0	0

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MIKKELSON, THOMAS J Quantitation of Drug Uptake by Corneal Epithelium University of Kansas, Lawrence/Pharmaceutical Chemistry Lawrence, Kansas	5 R01 EY02328-03	08/01/78–07/31/81	2(C)	0	0	0
MOFFITT, STEVEN D Coordinating Office for Radial Keratotomy (CORK) Emory University/Biometry Atlanta, Georgia	5 R01 EY03752-02	09/30/80–09/29/85	3	57,137	29,035	86,172
MONDINO, BARTLY J The Role of Complement in External Diseases of Eye Eye and Ear Hospital of Pittsburgh/Ophthalmology Pittsburgh, Pennsylvania	2 R01 EY02304-04	01/01/78–12/31/83	2(B)	65,606	18,074	83,680
MONDINO, BARTLY J Lymphocytes in Immunologic Diseases of the Eye Eye and Ear Hospital of Pittsburgh/Ophthalmology Pittsburgh, Pennsylvania	5 R01 EY02894-03	03/12/79–02/28/82	5(A)	36,323	18,084	54,407
MONDINO, BARTLY J Staphylococcal Hypersensitivity Lesions of the Cornea Eye and Ear Hospital of Pittsburgh/Ophthalmology Pittsburgh, Pennsylvania	1 R01 EY03686-01	05/01/81–04/30/84	1(D)	35,640	11,464	47,104
MONTGOMERY, PAUL C Antibody Induction and Expression in the Eye University of Pennsylvania/Microbiology Philadelphia, Pennsylvania	1 R01 EY03894-01	09/01/81–08/31/84	2(B)	59,299	35,718	95,017
MYERS, WILLIAM Prospective Evaluation of Radial Keratotomy (PERK) William Beaumont Hospital/Ophthalmology Royal Oak, Michigan	1 R01 EY04176-01	09/30/81–09/29/86	3	63,058	11,008	74,066
NAGY, ROSE M Heterogeneity of Lymphocytes in Herpes Ocular Disease Wills Eye Hospital and Research Institute/Immunology Philadelphia, Pennsylvania	5 R01 EY02594-03	08/01/78–07/31/81	1(A)	0	0	0
NESBURN, ANTHONY B Herpes Simplex of the Eye: Pathogenesis and Treatment Estelle Doheny Eye Foundation Los Angeles, California	5 R01 EY00858-09	09/30/76–09/29/85	1(A)	133,617	85,255	218,872
NESBURN, ANTHONY B Ocular Herpes Simplex Infection in Rabbits Estelle Doheny Eye Foundation/Cornea and Virology Research Los Angeles, California	5 R01 EY02957-03	04/01/79–03/31/83	1(A)	75,603	44,994	120,597
NESBURN, ANTHONY B Keratophakia: Safety and Efficacy in Animals Estelle Doheny Eye Foundation/Cornea and Virology Research Los Angeles, California	5 R01 EY02987-03	07/01/79–06/30/82	3	59,251	39,655	98,906
NEUFELD, ARTHUR H Trophic Influences on the Corneal Epithelium Eye Research Institute of Retina Foundation/Cornea Research Boston, Massachusetts	5 R01 EY02360-05	07/01/77–06/30/85	2(B)	87,861	52,069	139,930

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NICOLAIDES, NICHOLAS External Eye Disease and Meibomian Gland Lipids University of Southern California/Medicine Los Angeles, California	2 R01 EY02702-03	02/01/79–01/31/86	1(F)	100,741	36,256	136,997
O'BRIEN, WILLIAM J Metabolism of Antiviral Compounds by Ocular Tissues Medical College of Wisconsin/Ophthalmology Milwaukee, Wisconsin	5 R01 EY02834-03	12/01/78–11/30/81	1(A)	48,366	30,308	78,674
O'DAY, DENIS M Studies in Experimental Fungal Infections of the Eye Vanderbilt University/Ophthalmology Nashville, Tennessee	5 R01 EY01621-06	04/01/79–03/31/84	1(D)	60,815	35,734	96,549
OAKES, JOHN E Corneal Disease: Mechanisms of Specific Inflammation University of South Alabama/Microbiology and Immunology Mobile, Alabama	1 R01 EY03621-01	09/01/81–08/31/85	1(A)	49,688	6,432	56,120
OBSTBAUM, STEPHEN A Prospective Evaluation of Radial Keratotomy (PERK) Mount Sinai School of Medicine/Ophthalmology New York, New York	1 R01 EY03751-01	02/01/81–01/31/86	3	59,613	18,270	77,883
OH, JANG O Eye Infections by Type 2 Herpes Simplex Virus University of California, San Francisco/Proctor Foundation for Research in Ophthalmology San Francisco, California	5 R01 EY01578-06	09/30/76–09/29/84	1(A)	79,258	24,570	103,828
OLSON, RANDALL J Corneal Physiology and Keratoplasty-Induced Glaucoma University of Utah/Surgery Salt Lake City, Utah	5 R01 EY03294-02	07/01/79–12/31/81	4(C)	0	0	0
PATTON, THOMAS F Age-Related Dosage Modifications for Ophthalmic Drugs University of Kansas, Lawrence/Pharmaceutical Chemistry Lawrence, Kansas	5 R01 EY01945-03	09/30/78–03/31/82	2(C)	0	0	0
PERCY, DEAN H Herpetic Ophthalmitis University of Western Ontario/Microbiology and Immunology London, Canada	5 R01 EY01833-05	02/01/77–06/30/82	1(A)	16,283	0	16,283
PFISTER, ROSWELL R Etiology and Treatment of Corneal Ulceration Eye Foundation Hospital, Birmingham/Ophthalmology Birmingham, Alabama	2 R01 EY02018-04	09/30/77–06/30/84	5(A)	141,438	29,557	170,995
PFISTER, ROSWELL R Ascorbic Acid therapy in Alkali Burns of the Eye Eye Foundation Hospital, Birmingham/Ophthalmology Birmingham, Alabama	5 R01 EY03186-03	04/06/79–03/31/82	5(A)	26,647	32,520	59,167
POLACK, FRANK M Ultramicroscopic Changes in Cornea and Corneal Grafts University of Florida/Ophthalmology Gainesville, Florida	5 R01 EY00415-12	09/01/78–08/31/82	5(B)	0	0	0

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POLSE, KENNETH A Contact Lens Effects on Refractive Error University of California, Berkeley/Optometry Berkeley, California	3 R01 EY01755-04S1	06/30/76-02/28/82	3	37,453	13,731	51,184
PUTNEY, JAMES W, JR Cellular Pharmacology of Lacrimation Virginia Commonwealth University/Pharmacology Richmond, Virginia	2 R01 EY03533-02	04/01/80-06/30/83	2(A)	57,701	32,577	90,278
REINACH, PETER S Coupling Between Metabolism/Ionic Transport in Corneas Mount Sinai School of Medicine/Ophthalmology New York, New York	5 R01 EY01976-05	07/01/77-06/30/83	4(D)	60,786	28,311	89,097
RILEY, MICHAEL V Control of Corneal Hydration and Transparency Oakland University Rochester, Michigan	5 R01 EY00541-12	09/01/78-08/31/83	4(D)	68,988	30,848	99,836
ROTHSTEIN, HOWARD The Cell Cycle of Corneal Endothelium Wayne State University/Ophthalmology Detroit, Michigan	5 R01 EY02711-03	04/01/79-03/31/82	4(A)	27,016	13,178	40,194
ROWSEY, J JAMES Prospective Evaluation of Radial Keratotomy (PERK) University of Oklahoma Health Sciences Center/ Ophthalmology Oklahoma City, Oklahoma	1 R01 EY03756-01	02/01/81-01/31/86	3	100,113	13,959	114,072
SAFIR, ARAN Epikeratophakia: The Surgical Correction of Aphakia Louisiana State University Medical Center, New Orleans/ Ophthalmology New Orleans, Louisiana	5 R01 EY03635-02	09/30/80-09/29/83	3	60,900	13,975	74,875
SAFIR, ARAN Prospective Evaluation of Radial Keratotomy (PERK) Louisiana State University Medical Center, New Orleans/ Ophthalmology New Orleans, Louisiana	1 R01 EY03755-01	02/01/81-01/31/86	3	40,773	5,440	46,213
SCHACHTER, JULIUS Ocular Zoonoses: The Chlamydial Infection University of California, San Francisco/George W Hooper Foundation San Francisco, California	5 R01 EY01205-06	04/01/79-03/31/82	1(E)	75,104	23,282	98,386
SCHACHTER, JULIUS Inclusion Conjunctivitis of the Newborn University of California, San Francisco/George W Hooper Foundation San Francisco, California	5 R01 EY02216-04	05/01/78-04/30/83	4(C)	85,277	26,436	111,713
SCHACHTER, JULIUS Immunochemistry of Chlamydial Surface Antigens University of California, San Francisco/George W Hooper Foundation San Francisco, California	5 R01 EY03046-03	07/01/79-06/30/82	1(E)	78,641	24,379	103,020

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SCHAEFFER, BARRY E Trans-Corneal Chloride Transport and Membrane Fluidity New York University/Physiology and Biophysics New York, New York	5 R01 EY03151-03	07/01/79- 06/30/82	4(D)	60,709	26,818	87,527
SCHANZLIN, DAVID J Prospective Evaluation of Radial Keratotomy (PERK) University of Southern California/Ophthalmology Los Angeles, California	1 R01 EY03765-01	02/01/81- 01/31/86	3	59,953	14,508	74,461
SCHULTZ, RICHARD O Diabetes Mellitus and the Anterior Segment of the Eye Medical College of Wisconsin/Ophthalmology Milwaukee, Wisconsin	5 R01 EY02901-03	05/08/78- 06/30/81	4(C)	0	0	0
SERY, THEODORE W Response of Corneal Stroma to Injection of Proteins Wills Eye Hospital and Research Institute/Microbiology Philadelphia, Pennsylvania	5 R01 EY00195-23	09/30/80- 09/29/83	1(A)	92,865	64,160	157,025
SERY, THEODORE W Experimental Herpes Virus Corneal Infections Wills Eye Hospital and Research Institute/Virology Philadelphia, Pennsylvania	5 R01 EY01454-05	09/01/77- 03/31/81	1(A)	0	0	0
SILVERSTEIN, ARTHUR M The Pathobiology of the Cornea Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY02650-04	08/01/78- 07/31/83	5(B)	102,905	51,453	154,358
SMITH, JERRY W Viral Antigens in Herpetic Eye Disease Louisiana State University Medical Center, New Orleans/ Microbiology and Immunology New Orleans, Louisiana	5 R01 EY02984-03	04/01/79- 03/31/82	1(A)	51,435	13,288	64,723
SMITH, RICHARD S Ultrastructural Study of Corneal Vascularization Albany Medical College/Ophthalmology Albany, New York	2 R01 EY00538-10A1	05/01/76- 11/30/83	2(A)	53,370	24,490	77,860
SMITH, RONALD E Retrocorneal Fibrous Membranes in Rabbit Eyes University of Southern California/Ophthalmology Los Angeles, California	2 R01 EY01993-04	08/01/77- 11/30/83	4(A)	92,658	27,249	119,907
SMITH, RONALD E The Effects of Radial Keratotomy on Corneal Curvature University of Southern California/Ophthalmology Los Angeles, California	5 R01 EY03562-02	09/30/80- 09/29/83	3	65,799	21,714	87,513
SMOLIN, GILBERT Alterations of Corneal Immunologic Reactions University of California, San Francisco/Proctor Foundation for Research in Ophthalmology San Francisco, California	5 R01 EY01121-07	09/01/77- 03/31/81	5(A)	0	0	0
SRINIVASAN, B DOBLI Corneal Reepithelialization Columbia University/Ophthalmology New York, New York	5 R01 EY01977-03	06/01/77- 11/30/80	5(A)	0	0	0

Corneal Diseases
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
STANTON, G JOHN Acute Hemorrhagic Conjunctivitis and Interferon University of Texas Medical Branch, Galveston/Microbiology Galveston, Texas	5 R01 EY01715-06	04/01/79-03/31/82	1(A)	75,688	26,624	102,312
STANTON, G JOHN Study of Host Defenses in Herpes Keratitis University of Texas Medical Branch, Galveston/Microbiology Galveston, Texas	5 R01 EY03348-02	08/01/80-07/31/83	1(A)	64,542	22,871	87,413
STARK, WALTER J Histocompatibility (HLA) Antigens in Keratoplasty Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY01302-06	09/30/78-08/31/84	5(B)	100,407	50,204	150,611
STREILEIN, J WAYNE Anterior Chamber Influence on Response to Ocular Antigen University of Texas Health Sciences Center, Dallas/Cell Biology Dallas, Texas	5 R01 EY03119-03	07/01/79-06/30/82	5(B)	70,698	26,648	97,346
SUGAR, JOEL Trigger Mechanisms of Recurrent Herpes Keratitis University of Illinois Medical Center/Ophthalmology Chicago, Illinois	5 R01 EY02426-03	04/01/78-03/31/81	1(A)	0	0	0
SUN, TUNG-TIEN Studies of Corneal Epithelial Differentiation Johns Hopkins University/Dermatology Baltimore, Maryland	5 R01 EY02472-04	05/01/78-04/30/83	2(B)	78,052	41,608	119,660
SUNDAR RAJ, CHOLAPPADI V The Corneal Epithelial Basement Membrane Eye and Ear Hospital of Pittsburgh/Ophthalmology Pittsburgh, Pennsylvania	5 R01 EY03262-02	03/01/80-02/28/83	5(A)	38,269	18,657	56,926
SUNDAR RAJ, NIRMALA Characterization of Corneal Cell-Surface Antigens Eye and Ear Hospital of Pittsburgh/Ophthalmology Pittsburgh, Pennsylvania	5 R01 EY03263-02	12/01/79-11/30/84	5(B)	53,984	20,406	74,390
SWINGER, CASIMIR A Refractive Keratoplasty--An Animal Model Beth Israel Medical Center/Ophthalmology New York, New York	5 R01 EY03346-02	07/01/80-06/30/83	3	64,578	30,424	95,002
TABBARA, KHALID F Autoimmune Disease and the Eye: Sjögren's Syndrome University of California, San Francisco/Proctor Foundation for Research in Ophthalmology San Francisco, California	5 R01 EY03436-02	07/01/80-06/30/83	5(A)	64,350	19,949	84,299
TAYLOR, HUGH R The Pathogenesis of Trachoma Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY03324-02	04/01/80-03/31/83	1(E)	108,474	32,287	140,761
THOFT, RICHARD A Metabolism of Ocular Surface Epithelium Eye Research Institute of Retina Foundation/Cornea Research Boston, Massachusetts	5 R01 EY01830-05	01/13/77-12/31/82	2(B)	108,111	68,246	176,357

Corneal Diseases
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
THOFT, RICHARD A Effects of Diabetes Mellitus on Ocular Surface Eye Research Institute of Retina Foundation/Cornea Research Boston, Massachusetts	5 R01 EY03061-03	09/30/79- 09/29/82	2(B)	38,031	20,571	58,602
UNDERWOOD, BARBARA A Ocular Health, Infection, and Vitamin A Deficiency Massachusetts Institute of Technology/Nutrition and Food Science Cambridge, Massachusetts	5 R01 EY03126-02	09/01/80- 08/31/83	2(B)	119,733	46,472	166,205
VAN HORN, DIANE L Regenerative Capacity of the Cornea Medical College of Wisconsin/Ophthalmology Milwaukee, Wisconsin	2 R01 EY01436-07	07/01/77- 06/30/86	4(B)	89,813	30,846	120,659
VASTINE, DAVID W Experimental Studies of Adenoviral Ocular Infections Institutes of Medical Sciences/Smith-Kettlewell Institute of Visual Sciences San Francisco, California	5 R01 EY02955-03	04/01/79- 03/31/82	1(C)	89,953	40,240	130,193
WALKENBACH, RONALD J Control of Corneal Physiology by Cyclic Nucleotides Eye Research Foundation of Missouri/Laboratory of Pharmacology Columbia, Missouri	2 R01 EY02597-04	09/01/78- 07/31/84	2(B)	92,356	50,113	142,469
WARING, GEORGE O, III Animal Models of Corneal Dystrophies and Degenerations Emory University/Ophthalmology Atlanta, Georgia	5 R01 EY03302-02	08/01/79- 03/31/81	4(G)	0	0	0
WARING, GEORGE O, III Prospective Evaluation of Radial Keratotomy (PERK) Emory University/Ophthalmology Atlanta, Georgia	5 R01 EY03761-02	09/30/80- 09/29/85	3	159,358	35,687	195,045
WEIMAR, VIRGINIA L Reaction of Corneal Cells to Injury University of Oregon Health Sciences Center/Ophthalmology Portland, Oregon	5 R01 EY00238-19	12/01/78- 11/30/81	2(B)	99,642	34,469	134,111
WHIKEHART, DAVID R Metabolic Control of Corneal Deturgescence University of Alabama, Birmingham/Physiological Optics Birmingham, Alabama	5 R01 EY02949-03	04/01/79- 05/31/82	4(A)	20,150	7,891	28,041
WILSON, GRAEME S Light Scattering by the Corneal Epithelium University of Alabama, Birmingham/Physiological Optics Birmingham, Alabama	5 R01 EY02996-02	04/01/79- 03/31/83	4(E)	2,339	2,415	4,754
WOLF, GEORGE D Corneal Glycoproteins, Collagenase, and Vitamin A Massachusetts Institute of Technology/Nutrition and Food Science Cambridge, Massachusetts	5 R01 EY00515-13	05/01/79- 04/30/82	5(A)	65,471	28,307	93,778
YUE, BEATRICE Y Connective Tissue Synthesis in Diseased Corneas University of Illinois Medical Center/Ophthalmology Chicago, Illinois	1 R01 EY03890-01	09/01/81- 08/31/84	4(E)	65,228	37,180	102,408

Corneal Diseases
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
ZADUNAISKY, JOSE A Corneal Electrophysiology and Ocular Barriers New York University/Physiology and Biophysics New York, New York	5 R01 EY01340–08	12/01/77– 11/30/82	4(D)	143,240	63,848	207,088
Total Active Research Grants in this Program in FY 1981: 179 **Total Research Grants in this Program Receiving FY 1981 Funds: 157** **Total FY 1981 Dollars Supporting Research Grants in this Program:**				**11,133,954**	**4,533,490**	**15,667,444**

Corneal Diseases Research Grants Active in FY 1981, Subprogram/Area Listing

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
1. External Ocular Infections and Inflammatory Disease		
1A. Herpes Simplex		
Albert, Daniel M	New Antiviral Nucleosides for Ocular and Other Herpes Massachusetts Eye and Ear Infirmary/Howe Laboratory	$180,890
Centifanto, Ysolina M	HSV Strain Specificity and Ocular Disease Louisiana State University Medical Center, New Orleans/Ophthalmology	74,914
Chandler, John W, Jr	Herpetic Keratitis: Early Virus Neuron Interactions Swedish Hospital Medical Center/Ophthalmology	53,708
Cleveland, Patrick H	Immunodiagnosis of Ocular Herpes Virus Infections University of California, San Diego/Surgery	75,452
Dawson, Chandler R	Pathogenesis and Early Diagnosis of Eye Inflammations University of California, San Francisco/Proctor Foundation for Research in Ophthalmology	0
Green, Mary T	Recurrent Ocular Herpes Baylor College of Medicine/Ophthalmology	65,686
Haschke, Richard H	Retrograde Axonal Transport in the Visual System University of Washington/Anesthesiology	167,440
Hendricks, Robert L	Localized Immune Defect in Ocular Herpetic Recurrences University of Illinois Medical Center/Ophthalmology	88,777
Hill, James M	Iontophoresis of Antivirals to Herpes Eye Infections Medical College of Georgia/Cell and Molecular Biology	85,409
Kaufman, Herbert E	Ocular Herpes Simplex Louisiana State University Medical Center, New Orleans/Ophthalmology	159,435
Metcalf, Joseph F	Immunocytochemical Studies of Herpetic Keratitis University of California, Berkeley/Optometry	67,623
Meyers-Elliott, Roberta H	Mechanism of Corneal Inflammation in Herpes Keratitis University of California, Los Angeles/Jules Stein Eye Institute	128,090
Meyers, Roberta L	HLA and Immune Factors in Ocular Herpes University of California, Los Angeles/Ophthalmology	0
Nagy, Rose M	Heterogeneity of Lymphocytes in Herpes Ocular Disease Wills Eye Hospital and Research Institute/Immunology	0
Nesburn, Anthony B	Herpes Simplex of the Eye: Pathogenesis and Treatment Estelle Doheny Eye Foundation/Cornea and Virology Research	218,872
Nesburn, Anthony B	Ocular Herpes Simplex Infection in Rabbits Estelle Doheny Eye Foundation/Cornea and Virology Research	120,597
O'Brien, William J	Metabolism of Antiviral Compounds by Ocular Tissues Medical College of Wisconsin/Ophthalmology	78,674
Oakes, John E	Corneal Disease: Mechanisms of Specific Inflammation University of South Alabama/Microbiology and Immunology	56,120
Oh, Jang O	Eye Infections by Type 2 Herpes Simplex Virus University of California, San Francisco/Proctor Foundation for Research in Ophthalmology	103,828
Percy, Dean H	Herpetic Ophthalmitis University of Western Ontario/Microbiology and Immunology	16,283
Sery, Theodore W	Response of Corneal Stroma to Injection of Proteins Wills Eye Hospital and Research Institute/Microbiology	157,025

Corneal Diseases
Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
SERY, THEODORE W	Experimental Herpes Virus Corneal Infections Wills Eye Hospital and Research Institute/Virology	0
SMITH, JERRY W	Viral Antigens in Herpetic Eye Disease Louisiana State University Medical Center, New Orleans/Microbiology and Immunology	64,723
STANTON, G JOHN	Acute Hemorrhagic Conjunctivitis and Interferon University of Texas Medical Branch, Galveston/Microbiology	102,312
STANTON, G JOHN	Study of Host Defenses in Herpes Keratitis University of Texas Medical Branch, Galveston/Microbiology	87,413
SUGAR, JOEL	Trigger Mechanisms of Recurrent Herpes Keratitis University of Illinois Medical Center/Ophthalmology	0
Total Active Research Grants in this Area in FY 1981: 26 **Total Research Grants in this Area Receiving FY 1981 Funds: 21** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**2,153,271**

1B. Herpes Zoster

Total Active Research Grants in this Area in FY 1981: 0 **Total Research Grants in this Area Receiving FY 1981 Funds: 0** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**0**

1C. Adenovirus and Enterovirus

VASTINE, DAVID W	Experimental Studies of Adenoviral Ocular Infections Institutes of Medical Sciences/Smith-Kettlewell Institute of Visual Sciences	130,193
Total Active Research Grants in this Area in FY 1981: 1 **Total Research Grants in this Area Receiving FY 1981 Funds: 1** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**130,193**

1D. Bacterial and Fungal Keratitis

BARZA, MICHAEL J	Ocular Penetration of Antibiotics in a Model New England Medical Center Hospital	158,990
BERK, RICHARD S	*Pseudomonas* Eye Infections--An Experimental Model Wayne State University/Immunology and Microbiology	57,846
DAVIS, STARKEY D	Experimental *Pseudomonas* Keratitis Medical College of Wisconsin/Pediatrics	7,336
FORSTER, RICHARD K	Management of Fungal Keratitis and Endophthalmitis University of Miami/Ophthalmology	88,715
HALL, JOAN M	The Nature and Sequence of Ocular Immune Response University of California, San Francisco/Proctor Foundation for Research in Ophthalmology	93,681
HAZLETT, LINDA D	Alteration with Age of Resistance to Eye Infections Wayne State University/Anatomy	52,652
JOHNSON, MARY K	Role of Microbial Cytolysins in Ocular Infections Tulane University of Louisiana/Microbiology and Immunology	99,296
MONDINO, BARTLY J	Staphylococcal Hypersensitivity Lesions of the Cornea Eye and Ear Hospital of Pittsburgh/Ophthalmology	47,104

Corneal Diseases
Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
O'Day, Denis M	Studies in Experimental Fungal Infections of the Eye Vanderbilt University/Ophthalmology	96,549
Total Active Research Grants in this Area in FY 1981: 9 **Total Research Grants in this Area Receiving FY 1981 Funds: 9** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**702,169**
1E. Chlamydial Keratoconjunctivitis		
Dawson, Chandler R	Analysis of Problems in Ocular Inflammatory Diseases University of California, San Francisco/Proctor Foundation for Research in Ophthalmology	174,356
Dawson, Chandler R	The Conjunctiva and Its Diseases University of California, San Francisco/Proctor Foundation for Research in Ophthalmology	112,176
Grayston, J Thomas	Prevention of Trachoma and Related Infections University of Washington/Pathobiology	153,386
Jawetz, Ernest	Viral Keratoconjunctivitis and Related Disorders University of California, San Francisco/Microbiology and Immunology	0
Macdonald, A Bruce	Ocular Immunology and Pathogenesis of Trachoma University of Massachusetts, Amherst/Microbiology	97,251
Schachter, Julius	Ocular Zoonoses: The Chlamydial Infection University of California, San Francisco/George W Hooper Foundation	98,386
Schachter, Julius	Immunochemistry of Chlamydial Surface Antigens University of California, San Francisco/George W Hooper Foundation	103,020
Taylor, Hugh R	The Pathogenesis of Trachoma Johns Hopkins University/Ophthalmology	140,761
Total Active Research Grants in this Area in FY 1981: 8 **Total Research Grants in this Area Receiving FY 1981 Funds: 7** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**879,336**
1F. Chronic Blepharitis		
Mc Culley, James P	Meibomian Keratoconjunctivitis University of Texas Health Sciences Center, Dallas/Ophthalmology	29,977
Nicolaides, Nicholas	External Eye Disease and Meibomian Gland Lipids University of Southern California/Medicine	136,997
Total Active Research Grants in this Area in FY 1981: 2 **Total Research Grants in this Area Receiving FY 1981 Funds: 2** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**166,974**
1G. Other Infections		
Greene, Bruce M	Onchocerciasis: Immunologically-Mediated Eye Disease Case Western Reserve University/Medicine	114,658

Corneal Diseases
Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
LANGHAM, MAURICE E	The Influence of DEC on Leucocytic Adherence to O.v. mf Johns Hopkins University/Ophthalmology	174,649
Total Active Research Grants in this Area in FY 1981: 2 **Total Research Grants in this Area Receiving FY 1981 Funds: 2** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**289,307**
Total Active Research Grants in this Subprogram in FY 1981: 48 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 42** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**4,321,250**

2. Ocular Surface Problems

2A. Tear Film and its Abnormalities

ANDERSON, JANET A	Characterization of Tear Protease Inhibitors University of California, Irvine/Ophthalmology	50,785
BROMBERG, BARRY B	Autonomic Control of Lacrimal Gland Function Louisiana State University--University of New Orleans/Biological Sciences	44,997
DARTT, DARLENE A	Mechanism of Lacrimal Gland Secretion Tufts University/Physiology	89,131
DOANE, MARSHALL G	The Interaction of Lids and Tears in Corneal Wetting Eye Research Institute of Retina Foundation/Cornea Research	87,689
FARRIS, ROBERT L	Tear Analysis Columbia University/Ophthalmology	102,026
GILBARD, JEFFREY P	Drying of the Ocular Surface Eye Research Institute of Retina Foundation/Cornea Research	40,307
HILL, RICHARD M	The Corneal Environment Ohio State University/Physiological Optics	48,819
HOLLY, FRANK J	Basic and Clinical Studies of Lacrimal Surfactant Texas Tech University/Ophthalmology and Visual Sciences	118,283
PUTNEY, JAMES W, JR	Cellular Pharmacology of Lacrimation Virginia Commonwealth University/Pharmacology	90,278
SMITH, RICHARD S	Ultrastructural Study of Corneal Vascularization Albany Medical College/Ophthalmology	77,860
Total Active Research Grants in this Area in FY 1981: 10 **Total Research Grants in this Area Receiving FY 1981 Funds: 10** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**750,175**

2B. Ocular Surface Disorders

ALLANSMITH, MATHEA R	The Secretory IgA System of the Eye Eye Research Institute of Retina Foundation	96,818
ANDERSON, ETHEL I	The Anterior Eye: State and Function of Thiol Groups Columbia University/Ophthalmology	121,583
AUERBACH, ROBERT	Angiogenesis in the Mouse Eye University of Wisconsin, Madison/Zoology	66,641
BALLOW, MARK	Mediators of Inflammation in Tear Secretions University of Connecticut Health Center/Pediatrics	69,136
BERMAN, MICHAEL B	Cellular and Biochemical Bases of Corneal Ulceration Emory University/Ophthalmology	147,298

Corneal Diseases
Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Beuerman, Roger W	Corneal Neurobiology Louisiana State University Medical Center, New Orleans/Ophthalmology	114,698
Brown, Stuart I	Collagenolytic Systems in Normal and Diseased Corneas Eye and Ear Hospital of Pittsburgh/Ophthalmology	55,714
Cavanagh, H Dwight	Biochemical Control of Growth in Corneal Epithelium Emory University/Ophthalmology	122,036
Eiferman, Richard A	Comparative Inhibition of Tissue Collagenases University of Louisville/Biochemistry	25,962
Eliason, Joseph A	Isolation of Corneal Epithelial Angiogenic Factors Stanford University/Surgery	49,776
Franklin, Rudolph M	Secretory Immune System--Relationship to Ocular Disease Louisiana State University Medical Center, New Orleans/Ophthalmology	80,126
Friedlaender, Mitchell H	Immunopathology of Hypersensitivity Reactions in the Eye University of California, San Francisco/Proctor Foundation for Research in Ophthalmology	88,412
Gipson, Ilene K	Cell Motility and Adhesion in Corneal Wound Healing Eye Research Institute of Retina Foundation/Histology	103,008
Gospodarowicz, Denis J	Regeneration of Corneal Epithelium and Endothelium University of California, San Francisco/Cancer Research Institute	159,176
Gross, Jerome	Corneal Collagenase: Cellular and Biochemical Control Massachusetts General Hospital/Development Biological Laboratories Medical Service	73,520
Jakobiec, Frederick A	B-and T-Lymphocyte Subpopulations in Ocular Diseases Cornell University Medical Center/Ophthalmology	186,129
Masters, Barry R	Redox States of Normal/Pathological Corneal Conditions University of Pennsylvania/Johnson Foundation for Medical Physics	127,189
Meyer, Roger F	Clinical Potential of Cultured Corneal Endothelium University of Michigan, Ann Arbor/Ophthalmology	101,617
Mondino, Bartly J	The Role of Complement in External Diseases of Eye Eye and Ear Hospital of Pittsburgh/Ophthalmology	83,680
Montgomery, Paul C	Antibody Induction and Expression in the Eye University of Pennsylvania/Microbiology	95,017
Neufeld, Arthur H	Trophic Influences on the Corneal Epithelium Eye Research Institute of Retina Foundation/Cornea Research	139,930
Sun, Tung-Tien	Studies of Corneal Epithelial Differentiation Johns Hopkins University/Dermatology	119,660
Thoft, Richard A	Metabolism of Ocular Surface Epithelium Eye Research Institute of Retina Foundation/Cornea Research	176,357
Thoft, Richard A	Effects of Diabetes Mellitus on Ocular Surface Eye Research Institute of Retina Foundation/Cornea Research	58,602
Underwood, Barbara A	Ocular Health, Infection, and Vitamin A Deficiency Massachusetts Institute of Technology/Nutrition and Food Science	166,205
Walkenbach, Ronald J	Control of Corneal Physiology by Cyclic Nucleotides Eye Research Foundation of Missouri/Laboratory of Pharmacology	142,469

Corneal Diseases
Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
WEIMAR, VIRGINIA L	Reaction of Corneal Cells to Injury University of Oregon Health Sciences Center/Ophthalmology	134,111
Total Active Research Grants in this Area in FY 1981: 27 **Total Research Grants in this Area Receiving FY 1981 Funds: 27** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**2,904,870**
2C. Drug Delivery and Toxicity		
ALLANSMITH, MATHEA R	Ocular Anaphylaxis Eye Research Institute of Retina Foundation/Cornea Research	126,037
LEMP, MICHAEL A	Effect of Systemic Drugs on Tear Production Georgetown University/Ophthalmology	0
MIKKELSON, THOMAS J	Quantitation of Drug Uptake by Corneal Epithelium University of Kansas, Lawrence/Pharmaceutical Chemistry	0
PATTON, THOMAS F	Age-Related Dosage Modifications for Ophthalmic Drugs University of Kansas, Lawrence/Pharmaceutical Chemistry	0
Total Active Research Grants in this Area in FY 1981: 4 **Total Research Grants in this Area Receiving FY 1981 Funds: 1** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**126,037**
Total Active Research Grants in this Subprogram in FY 1981: 41 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 38** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**3,781,082**
3. Refractive Problems and Contact Lenses		
BINDER, PERRY S	Refractive Corneal Surgery University of California, San Diego/Surgery	111,733
GELENDER, HENRY	Prospective Evaluation of Radial Keratotomy (PERK) University of Miami/Ophthalmology	54,009
KAUFMAN, HERBERT E	Corneal Preservation and Keratoplasty Louisiana State University Medical Center, New Orleans/Ophthalmology	118,314
LAIBSON, PETER R	Prospective Evaluation of Radial Keratotomy (PERK) Wills Eye Hospital and Research Institute/Cornea Service	58,705
LINDSTROM, RICHARD L	Prospective Evaluation of Radial Keratotomy (PERK) University of Minnesota, Minneapolis-St Paul/Ophthalmology	60,057
MANDELL, ROBERT B	Oxygen Requirement for Continuous-Wear Contact Lenses University of California, Berkeley/Optometry	72,995
MC CAREY, BERNARD E	Refractive Keratoplasty Emory University/Ophthalmology	131,084
MOFFITT, STEVEN D	Coordinating Office for Radial Keratotomy (CORK) Emory University/Biometry	86,172
MYERS, WILLIAM	Prospective Evaluation of Radial Keratotomy (PERK) William Beaumont Hospital/Ophthalmology	74,066
NESBURN, ANTHONY B	Keratophakia: Safety and Efficacy in Animals Estelle Doheny Eye Foundation/Cornea and Virology Research	98,906
OBSTBAUM, STEPHEN A	Prospective Evaluation of Radial Keratotomy (PERK) Mount Sinai School of Medicine/Ophthalmology	77,883
POLSE, KENNETH A	Contact Lens Effects on Refractive Error University of California, Berkeley/Optometry	51,184

Corneal Diseases
Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
ROWSEY, J JAMES	Prospective Evaluation of Radial Keratotomy (PERK) University of Oklahoma Health Sciences Center/Ophthalmology	114,072
SAFIR, ARAN	Epikeratophakia: The Surgical Correction of Aphakia Louisiana State University Medical Center, New Orleans/Ophthalmology	74,875
SAFIR, ARAN	Prospective Evaluation of Radial Keratotomy (PERK) Louisiana State University Medical Center, New Orleans/Ophthalmology	46,213
SCHANZLIN, DAVID J	Prospective Evaluation of Radial Keratotomy (PERK) University of Southern California/Ophthalmology	74,461
SMITH, RONALD E	The Effects of Radial Keratotomy on Corneal Curvature University of Southern California/Ophthalmology	87,513
SWINGER, CASIMIR A	Refractive Keratoplasty--An Animal Model Beth Israel Medical Center/Ophthalmology	95,002
WARING, GEORGE O, III	Prospective Evaluation of Radial Keratotomy (PERK) Emory University/Ophthalmology	195,045
Total Active Research Grants in this Subprogram in FY 1981: 19 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 19** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**1,682,289**

4. Corneal Edema, Endothelial Dysfunction, Dystrophies, and Inherited Diseases

4A. Endothelial Tissue Culture, Replacement, and Repair

ALVARADO, JORGE A	Corneal Endothelial Replacement University of California, San Francisco/Ophthalmology	86,958
MAURICE, DAVID M	Control of Corneal Hydration Stanford University/Surgery	309,507
ROTHSTEIN, HOWARD	The Cell Cycle of Corneal Endothelium Wayne State University/Ophthalmology	40,194
SMITH, RONALD E	Retrocorneal Fibrous Membranes in Rabbit Eyes University of Southern California/Ophthalmology	119,907
WHIKEHART, DAVID R	Metabolic Control of Corneal Deturgescence University of Alabama, Birmingham/Physiological Optics	28,041
Total Active Research Grants in this Area in FY 1981: 5 **Total Research Grants in this Area Receiving FY 1981 Funds: 5** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**584,607**

4B. In Vivo Evaluation of Corneal Epithelial and Endothelial Membrane Function

BOURNE, WILLIAM M	Studies of the Cornea Mayo Foundation/Ophthalmology	15,774
HIRST, LAWRENCE W	Assessment of Corneal Endothelium in Vivo Johns Hopkins University/Ophthalmology	0
KLYCE, STEPHEN D	Transport Processes Across the Corneal Epithelium Louisiana State University Medical Center, New Orleans/Ophthalmology	122,591
VAN HORN, DIANE L	Regenerative Capacity of the Cornea Medical College of Wisconsin/Ophthalmology	120,659
Total Active Research Grants in this Area in FY 1981: 4 **Total Research Grants in this Area Receiving FY 1981 Funds: 3** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**259,024**

Corneal Diseases
Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
4C. In Vivo Morphologic Evaluation--Specular Microscopy		
LAING, RONALD A	Studies of the Corneal Endothelium of the Eye Boston University/Ophthalmology	126,129
LAING, RONALD A	Metabolic Studies of Corneal Tissues Boston University/Ophthalmology	0
OLSON, RANDALL J	Corneal Physiology and Keratoplasty-Induced Glaucoma University of Utah/Surgery	0
SCHACHTER, JULIUS	Inclusion Conjunctivitis of the Newborn University of California, San Francisco/George W Hooper Foundation	111,713
SCHULTZ, RICHARD O	Diabetes Mellitus and the Anterior Segment of the Eye Medical College of Wisconsin/Ophthalmology	0
Total Active Research Grants in this Area in FY 1981: 5 **Total Research Grants in this Area Receiving FY 1981 Funds: 2** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**237,842**
4D. Endothelial and Epithelial Transport Processes (Corneal Hydration and Edema)		
BAUM, JULES L	Biochemistry of Normal and Dystrophic Corneas in Culture Tufts University/Ophthalmology	188,869
DIKSTEIN, SHABTAY	GABA and the Rabbit Corneal Endothelial Pump Hebrew University of Jerusalem/Cell Pharmacology Unit	32,737
EDELHAUSER, HENRY F	Pathogenesis of Corneal Edema After Intraocular Surgery Medical College of Wisconsin/Physiology	113,706
FISCHBARG, JORGE	Bioelectrical Properties of Corneal Endothelium Columbia University/Ophthalmology	202,760
HULL, DAVID S	Drugs, Pathologic Conditions, and Cornea Endothelium Medical College of Georgia/Ophthalmology	49,654
LIM, JONG J	Endothelial Cell Adhesion and Transport Mechanisms Columbia University/Ophthalmology	124,838
REINACH, PETER S	Coupling Between Metabolism/Ionic Transport in Corneas Mount Sinai School of Medicine/Ophthalmology	89,097
RILEY, MICHAEL V	Control of Corneal Hydration and Transparency Oakland University	99,836
SCHAEFFER, BARRY E	Trans-Corneal Chloride Transport and Membrane Fluidity New York University/Physiology and Biophysics	87,527
ZADUNAISKY, JOSE A	Corneal Electrophysiology and Ocular Barriers New York University/Physiology and Biophysics	207,088
Total Active Research Grants in this Area in FY 1981: 10 **Total Research Grants in this Area Receiving FY 1981 Funds: 10** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**1,196,112**
4E. Stromal Swelling and Transparency		
ALPER, ROBERT	Corneal Structural Glycoproteins University City Science Center/Biochemistry	100,872
CINTRON, CHARLES	Macromolecular Morphogenesis of Corneal Tissues Eye Research Institute of Retina Foundation/Cornea Research	158,435
ELLIOTT, GERALD F	X-Ray and Neutron Diffraction Studies of Corneal Stroma Open University	25,634

Corneal Diseases
Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
FARRELL, RICHARD A	Light Scattering Studies of Ocular Tissues Johns Hopkins University/Ophthalmology	103,757
HONG, BOR-SHYUE	Structure and Function of a Distinct Collagen in Cornea Texas Tech University/Ophthalmology and Visual Sciences	74,618
WILSON, GRAEME S	Light Scattering by the Corneal Epithelium University of Alabama, Birmingham/Physiological Optics	4,754
YUE, BEATRICE Y	Connective Tissue Synthesis in Diseased Corneas University of Illinois Medical Center/Ophthalmology	102,408
Total Active Research Grants in this Area in FY 1981: 7 **Total Research Grants in this Area Receiving FY 1981 Funds: 7** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**570,478**
4F. Normal Corneal Development		
CHURCH, ROBERT L	Genetic Dissection of Ocular Connective Tissue W. Alton Jones Cell Science Center	108,506
CONRAD, GARY W	Fibroblast Differentiation During Eye Development Kansas State University/Division of Biology	72,198
Total Active Research Grants in this Area in FY 1981: 2 **Total Research Grants in this Area Receiving FY 1981 Funds: 2** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**180,704**
4G. Corneal Dystrophies, Inherited Disorders, and Developmental Anomalies		
BROWN, STUART I	Structural Macromolecules: Normal and Diseased Cornea Eye and Ear Hospital of Pittsburgh/Ophthalmology	144,623
GREGORY, JOHN D	Biosynthesis and Turnover of Proteoglycans in Cornea Rockefeller University/Biochemistry	73,048
KENNEY, CRISTINA M	Descemet's Membrane in Corneal Disorders University of California, Davis/Human Anatomy	43,517
KLINTWORTH, GORDON K	Experimental Approach to Diseases of the Cornea Duke University/Pathology	223,656
MACMILLAN, ALAN D	Familial Dystrophic and Dysplastic Eye Diseases University of California, Davis/Surgery	0
WARING, GEORGE O, III	Animal Models of Corneal Dystrophies and Degenerations Emory University/Ophthalmology	0
Total Active Research Grants in this Area in FY 1981: 6 **Total Research Grants in this Area Receiving FY 1981 Funds: 4** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**484,844**
Total Active Research Grants in this Subprogram in FY 1981: 39 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 33** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**3,513,611**
5. Corneal Transplantation and Stromal Wound Healing		
5A. Inflammation and Repair		
DAVISON, PETER F	The Collagens in Lamellar Tissues of the Eye Boston Biomedical Research Institute/Fine Structure	119,808
FOSTER, CHARLES S	Immunopathology in Ulcerative Keratitis Eye Research Institute of Retina Foundation/Corneal Research	131,980

Corneal Diseases
Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Funderburgh, James L	Proteoglycans in Normal and Scarred Corneas Swedish Hospital Medical Center/Ophthalmology	63,463
Galbavy, Edward J	The Characterization of Collagen in Ocular Tissue Boston Biomedical Research Institute/Boston Biomedical Research Institute	50,454
Gray, Robert D	Covalent Control of Cornea-Damaging Collagenase University of Louisville/Biochemistry	0
Harris, Thomas M	Ocular Basement Membrane Changes in Corneal Pathology Virginia Commonwealth University/Anatomy	55,803
Kao, Winston W	Biosynthesis of Collagen in Embryonic Chick Cornea Eye and Ear Hospital of Pittsburgh/Ophthalmology	68,177
Kreger, Arnold S	Pathogenesis of Bacterial Infections of the Cornea Wake Forest University/Microbiology and Immunology	0
Lande, Mauricio A	Studies on Keratocytes in Culture Wayne State University/Anatomy	78,724
Linsenmayer, Thomas F	Corneal Stroma: Synthesis and Assembly of Collagens Massachusetts General Hospital/Medical Service	101,485
Mondino, Bartly J	Lymphocytes in Immunologic Diseases of the Eye Eye and Ear Hospital of Pittsburgh/Ophthalmology	54,407
Pfister, Roswell R	Etiology and Treatment of Corneal Ulceration Eye Foundation Hospital, Birmingham/Ophthalmology	170,995
Pfister, Roswell R	Ascorbic Acid therapy in Alkali Burns of the Eye Eye Foundation Hospital, Birmingham/Ophthalmology	59,167
Smolin, Gilbert	Alterations of Corneal Immunologic Reactions University of California, San Francisco/Proctor Foundation for Research in Ophthalmology	0
Srinivasan, B Dobli	Corneal Reepithelialization Columbia University/Ophthalmology	0
Sundar Raj, Cholappadi V	The Corneal Epithelial Basement Membrane Eye and Ear Hospital of Pittsburgh/Ophthalmology	56,926
Tabbara, Khalid F	Autoimmune Disease and the Eye: Sjögren's Syndrome University of California, San Francisco/Proctor Foundation for Research in Ophthalmology	84,299
Wolf, George D	Corneal Glycoproteins, Collagenase, and Vitamin A Massachusetts Institute of Technology/Nutrition and Food Science	93,778
Total Active Research Grants in this Area in FY 1981: 18 **Total Research Grants in this Area Receiving FY 1981 Funds: 14** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**1,189,466**

5B. Corneal Transplantation

Barber, John C	Tissue Stabilized Alloplastic Corneal Prosthesis University of Texas Medical Branch, Galveston/Ophthalmology	56,255
Calkins, Joseph L	Holographic Stress-Testing of the Surgical Cornea Johns Hopkins University/Ophthalmology	0
Chandler, John W, Jr	Immunopathology and Therapy of Corneal Disease Swedish Hospital Medical Center/Ophthalmology	81,545
Gebhardt, Bryan M	Suppression of Cornea Allograft Rejection Louisiana State University Medical Center, New Orleans/Ophthalmology	87,963

Corneal Diseases
Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Gospodarowicz, Denis J	Corneal Endothelia Transplant: Clinical Implication University of California, San Francisco/Cancer Research Institute	0
Herp, Anthony	Protease Inhibition in Corneal Ulcers New York Medical College/Biochemistry	78,292
Leibowitz, Howard M	Studies in Corneal Transplantation Boston University/Ophthalmology	185,171
Leibowitz, Howard M	Development of Functional Biopolymers for the Eye Boston University/Ophthalmology	110,677
Manski, Wladyslaw J	Effects of Antiocular Antibodies on Ocular Tissues Columbia University/Ophthalmology	103,138
Polack, Frank M	Ultramicroscopic Changes in Cornea and Corneal Grafts University of Florida/Ophthalmology	0
Silverstein, Arthur M	The Pathobiology of the Cornea Johns Hopkins University/Ophthalmology	154,358
Stark, Walter J	Histocompatibility (HLA) Antigens in Keratoplasty Johns Hopkins University/Ophthalmology	150,611
Streilein, J Wayne	Anterior Chamber Influence on Response to Ocular Antigen University of Texas Health Sciences Center, Dallas/Cell Biology	97,346
Sundar Raj, Nirmala	Characterization of Corneal Cell-Surface Antigens Eye and Ear Hospital of Pittsburgh/Ophthalmology	74,390
Total Active Research Grants in this Area in FY 1981: 14 **Total Research Grants in this Area Receiving FY 1981 Funds: 11** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**1,179,746**
Total Active Research Grants in this Subprogram in FY 1981: 32 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 25** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**2,369,212**
Total Active Research Grants in this Program in FY 1981: 179 **Total Research Grants in this Program Receiving FY 1981 Funds: 157** **Total FY 1981 Dollars Supporting Research Grants in this Program:**		**15,667,444**

Corneal Diseases
Specialized Clinical Research Center Grants
Active in FY 1981

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
BROWN, STUART I Study and Treatment of Immune Ocular Diseases Eye and Ear Hospital of Pittsburgh/Ophthalmology Pittsburgh, Pennsylvania	3 P50 EY01991-04S1	07/01/77- 07/31/82	5(A)	$19,248	$6,592	$25,840
Total Active Specialized Clinical Research Center Grants in this Program in FY 1981: 1 **Total Specialized Clinical Research Center Grants in this Program Receiving FY 1981 Funds: 1** **Total FY 1981 Dollars Supporting Specialized Clinical Research Center Grants in this Program:**				**19,248**	**6,592**	**25,840**

Corneal Diseases
Institutional National Research Service Awards
Active in FY 1981

Program Director Project Title Institution/Department City, State	Grant Number	Project Period	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
BROWN, STUART I Ocular Connective Tissues Eye and Ear Hospital of Pittsburgh/Ophthalmology Pittsburgh, Pennsylvania	5 T32 EY07032-05	07/01/76- 06/30/81	$0	$0	$0
CHYLACK, LEO T, JR Ophthalmology Massachusetts Eye and Ear Infirmary Boston, Massachusetts	5 T32 EY07063-03	07/01/79- 06/30/84	132,781	10,099	142,880
EDELHAUSER, HENRY F Eye Physiology and Biochemistry Medical College of Wisconsin/Physiology Milwaukee, Wisconsin	5 T32 EY07016-07	07/01/75- 07/31/85	42,283	2,737	45,020
ELLIOTT, JAMES H Visual Sciences Vanderbilt University/Ophthalmology Nashville, Tennessee	5 T32 EY07007-05	07/01/76- 11/30/82	0	0	0
KAUFMAN, HERBERT E Careers in Ophthalmic Research and Teaching Louisiana State University Medical Center, New Orleans/ Ophthalmology New Orleans, Louisiana	1 T32 EY07073-01	07/01/81- 06/30/86	65,620	5,250	70,870
LEIBOWITZ, HOWARD M Vision Research--Multidisciplinary Boston University/Ophthalmology Boston, Massachusetts	5 T32 EY07054-04	09/30/78- 09/29/83	158,480	12,079	170,559
OSTLER, H BRUCE Ocular Inflammatory Disease University of California, San Francisco/Proctor Foundation for Research in Ophthalmology San Francisco, California	5 T32 EY07058-03	07/01/79- 06/30/84	92,443	7,267	99,710
POLACK, FRANK M Ophthalmology University of Florida/Ophthalmology Gainesville, Florida	5 T32 EY07012-05	07/01/75- 06/30/82	0	0	0
ROBINSON, DAVID A Visual Sciences--Multidisciplinary Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 T32 EY07047-05	07/01/77- 06/30/82	80,189	5,474	85,663
SCOTT, WALTER N Multidisciplinary Eye Diseases Mount Sinai School of Medicine/Ophthalmology New York, New York	5 T32 EY07014-07	07/01/75- 06/30/85	93,695	7,495	101,190
YANOFF, MYRON Experimental Ophthalmic Pathology University of Pennsylvania/Ophthalmology Philadelphia, Pennsylvania	5 T32 EY07041-05	07/01/77- 06/30/82	14,997	1,200	16,197
Total Active Institutional NRSAs in this Program in FY 1981: 11 **Total Institutional NRSAs in this Program Receiving FY 1981 Funds: 8** **Total FY 1981 Dollars Supporting Institutional NRSAs in this Program:**			**680,488**	**51,601**	**732,089**

Corneal Diseases
Individual National Research Service Awards
Active in FY 1981

Name of Fellow, Degree Sponsor Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Stipends Awarded	FY 1981 Other Allowances Awarded	FY 1981 Total Awarded
ASBELL, PENNY A, MD Franklin, Rudolph M Immune Complex Model of Herpetic Disciform Edema Louisiana State University Medical Center, New Orleans/ Ophthalmology New Orleans, Louisiana	5 F32 EY05496-02	07/01/81- 06/30/82	1(A)	$17,892	$5,000	$22,892
BAHN, CHARLES F, MD Meyer, Roger F A Model of Penetrating Keratoplasty University of Michigan, Ann Arbor/Ophthalmology Ann Arbor, Michigan	1 F32 EY05576-01	09/01/81- 10/31/83	5(B)	16,236	5,000	21,236
BIRK, DAVID E, PhD Trelstad, Robert L Fibrillogenesis of Ocular Collagens Rutgers Medical School/Pathology Piscataway, New Jersey	1 F32 EY05585-01	09/01/81- 03/19/84	5(A)	13,380	5,000	18,380
BRUNER, WILLIAM E, MD Stark, Walter J Glycosidases of Cornea Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 F32 EY05402-02	07/02/80- 07/01/81	5(B)	0	0	0
BURNETT, JETTIE M, MD Neufeld, Arthur H Corneal Reparative Response to Epithelial Injury Eye Research Institute of Retina Foundation/Cornea Boston, Massachusetts	5 F32 EY05474-02	07/01/81- 06/30/82	5(A)	17,892	5,000	22,892
COHEN, ELISABETH J, MD Allansmith, Mathea R Immunity in Recurrent Herpes Keratitis in Guinea Pigs Eye Research Institute of Retina Foundation/Cornea Research Boston, Massachusetts	5 F32 EY05388-02	07/02/80- 07/01/81	1(A)	0	0	0
DARTT, DARLENE A, PhD Sharp, Geoffrey W Calcium and Control of Lacrimal Gland Secretion Tufts University/Physiology Boston, Massachusetts	5 F32 EY05360-02	06/01/80- 05/31/81	2(A)	0	0	0
DUNNE, WILLIAM M, JR, PhD O'Brien, William J Herpetic Eye Disease: Antiviral Action or Retinoids Medical College of Wisconsin/Ophthalmology Milwaukee, Wisconsin	1 F32 EY05555-01	08/01/81-	1(A)	13,380	5,000	18,380
FUJIKAWA, LESLIE S, MD Kenyon, Kenneth R Immune Mechanisms in Corneal Allograft Reaction Eye Research Institute of Retina Foundation/Retina Research Boston, Massachusetts	7 F32 EY05405-02	08/01/80- 02/28/81	5(B)	0	0	0
REDFIELD, DAVID C, MD Oxman, Michael N Immunologic Control of Recurrent Ocular Herpes University of California, San Diego/Medicine La Jolla, California	1 F32 EY05589-01	09/01/81- 03/31/84	1(A)	18,787	5,000	23,787

Corneal Diseases
Individual National Research Service Awards
Active in FY 1981—Continued

Name of Fellow, Degree Sponsor Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Stipends Awarded	FY 1981 Other Allowances Awarded	FY 1981 Total Awarded
SENDELE, DEBORAH D, MD Kenyon, Kenneth R Experimental Xerophthalmia and Keratomalacia in Vitamin A Eye Research Institute of Retina Foundation/Cornea Research Boston, Massachusetts	5 F32 EY05479-02	07/01/81- 06/30/82	5(A)	17,040	5,000	22,040
TOMASEK, JAMES J, PhD Hay, Elizabeth D Extracellular Matrix in Corneal Morphogenesis Harvard University/Anatomy Boston, Massachusetts	5 F32 EY05495-02	06/02/81- 05/31/83	4(G)	14,040	5,000	19,040
UBELS, JOHN L, PhD Edelhauser, Henry F Penetration and Metabolism of Retinoids in the Cornea Medical College of Wisconsin/Physiology Milwaukee, Wisconsin	5 F32 EY05450-02	07/01/81- 06/30/82	2(A)	14,040	5,000	19,040
WILLEY, DRU E, PhD Meyers-Elliott, Roberta H Ocular Hypersensitivity to Herpes Virus Glycoproteins University of California, Los Angeles/Ophthalmology Los Angeles, California	1 F32 EY05526-01	12/01/80- 08/31/81	1(A)	0	0	0
Total Active Individual NRSAs in this Program in FY 1981: 14 **Total Individual NRSAs in this Program Receiving FY 1981 Funds: 9** **Total FY 1981 Dollars Supporting Individual NRSAs in this Program:**				**142,687**	**45,000**	**187,687**

Corneal Diseases
Research Career Development Awards
Active in FY 1981

Awardee Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
CHURCH, ROBERT L Biology and Genetics of Procollagen from the Cornea W. Alton Jones Cell Science Center Lake Placid, New York	5 K04 EY00220-05	07/01/80- 12/31/80	5(A)	$13,286	$0	$13,286
CHURCH, ROBERT L Biology and Genetics of Procollagen from the Cornea W. Alton Jones Cell Science Center Lake Placid, New York	7 K04 EY00232-01	01/01/81- 09/30/81	5(A)	24,214	3,000	27,214
GIPSON, ILENE K Cell Motility and Adhesion During Corneal Wound Healing Eye Research Institute of Retina Foundation Boston, Massachusetts	5 K04 EY00192-03	08/01/79- 07/31/83	2(B)	38,058	3,007	41,065
SUN, TUNG-TIEN Studies of Corneal Epithelial Differentiation Johns Hopkins University/Dermatology Baltimore, Maryland	5 K04 EY00125-04	08/01/78- 07/31/83	2(B)	35,850	2,868	38,718
Total Active Research Career Development Awards in this Program in FY 1981: 3 **Total Research Career Development Awards in this Program Receiving FY 1981 Funds: 3** **Total FY 1981 Dollars Supporting Research Career Development Awards in this Program:**				**111,408**	**8,875**	**120,283**

Corneal Diseases
Academic Investigator Awards
Active in FY 1981

Awardee Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded
KENYON, KENNETH R Pathological Studies of Ocular Surface Disorders Eye Research Institute of Retina Foundation/Cornea Research Boston, Massachusetts	5 K07 EY00156-03	11/15/78- 11/14/81	2(B)	$35,850
LIM, JONG J Endothelial Cell Adhesion and Dielectric Properties Columbia University/Ophthalmology New York, New York	5 K07 EY00105-03	07/15/78- 06/30/81	4(A)	0
Total Active Academic Investigator Awards in this Program in FY 1981: 2				
Total Academic Investigator Awards in this Program Receiving FY 1981 Funds: 1				
Total FY 1981 Dollars Supporting Academic Investigator Awards in this Program:				**35,850**

Corneal Diseases
NEI Intramural Research Projects
Active in FY 1981

Principal Investigator Project Title	Project Number	Sub-program (Area)	FY 1981 Professional Salaries	FY 1981 Other Direct Costs	FY 1981 Total Direct Costs
KAISER-KUPFER, MURIEL I The HLA and ABO Antigens and Immunologic Studies in Cogan's Syndrome	Z01 EY00085-04 CB	1(G)	$12,862	$17,607	$30,469
NEWSOME, DAVID A Ocular Connective Tissues Macromolecules and their Function in Vision	Z01 EY00057-03 CB	4(G)	8,037	52,299	60,336
NEWSOME, DAVID A Effects of Vitamin A, Selected Hormones and Drugs on Corneal Epithelium and Collagenases	Z01 EY00079-04 CB	4(G)	8,037	44,691	52,728
RODRIGUES, MERLYN M Histopathology and In Vitro Characteristics of Human Corneal Dystrophies and Degenerations	Z01 EY00078-04 CB	4(G)	16,537	32,010	48,547
Total Intramural Research Projects in this Program Receiving FY 1981 Funds: 4					
Total FY 1981 Dollars Supporting Intramural Research Projects in this Program:			**45,473**	**146,607**	**192,080**

III. CATARACT

SUBPROGRAMS:

1. The Normal Lens
2. Epidemiology of Cataract
3. Senile Cataract
4. Diabetic and Metabolic Cataract
5. Nongenetic Congenital and Genetic Cataracts and Dislocated Lenses
6. Cataract Induced by Environmental and Toxic Effects
7. Treatment of Cataract and Correction of Aphakia

Cataract
Research Grants Active in FY 1981, Alphabetical Listing

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
ABRAHAM, RAJENDER DNA Size and Genome Organization in Lens Cells Albany Medical College/Institute of Comparison and Human Toxicology Albany, New York	5 R01 EY03019-03	09/30/78-12/31/81	1	$0	$0	$0
ALBERS-JACKSON, BARBARA Lipid Metabolism of Normal, Aging, and Cataractous Lens Tennessee Technological University/Chemistry Cookeville, Tennessee	5 R01 EY03190-02	04/01/80-03/31/83	3	41,965	14,844	56,809
ANDREWS, JOHN S Lens Cell Membrane Synthesis and Cataractogenesis Vanderbilt University/Ophthalmology Nashville, Tennessee	5 R01 EY01852-05	12/01/76-03/31/83	1	54,298	26,641	80,939
AUGUSTEYN, ROBERT C The Mechanism of Senile Cataract Formation University of Melbourne/Biochemistry Parkville, Australia	5 R01 EY01525-06	08/30/78-06/29/81	3	0	0	0
AZARI, PARVIZ Intermolecular Cross-Links in Lens Colorado State University/Biochemistry Fort Collins, Colorado	5 R01 EY02416-04	04/01/78-06/30/83	1	43,230	15,234	58,464
BAGCHI, MIHIR Cell Biology of Mammalian Eye Lens in Culture Wayne State University/Anatomy Detroit, Michigan	5 R01 EY01848-05	09/30/76-06/30/83	3	38,045	14,960	53,005
BENEDEK, GEORGE B Physical and Chemical Basis of Lens Opacity Massachusetts Institute of Technology/Physics Cambridge, Massachusetts	5 R01 EY00797-10	05/01/77-04/30/85	1	117,692	72,070	189,762
BENTLEY, PETER J Pharmacology of Lenticular Ion Transport Mount Sinai School of Medicine/Ophthalmology New York, New York	5 R01 EY01278-08	02/01/77-06/30/83	1	54,614	27,904	82,518
BETTELHEIM, FREDERICK A Light Scattering Parameters of Cataractous Lenses Adelphi University/Chemistry Garden City, New York	2 R01 EY02571-04	09/01/78-04/30/85	3	53,528	18,168	71,696
BETTELHEIM, FREDERICK A The Interaction of Phosphopeptides with Lens Proteins Adelphi University/Chemistry Garden City, New York	5 R01 EY03407-02	09/01/80-08/31/83	1	33,959	14,355	48,314
BEYER-MEARS, ANNETTE Aldose Reductase Inhibitors Administered Topically College of Medicine and Dentistry of New Jersey/Physiology Newark, New Jersey	5 R01 EY03226-02	07/01/80-06/30/83	4	57,329	39,500	96,829
BHAT, SURAJ P Gene Expression in the Normal and Cataractous Lens Columbia University/Ophthalmology New York, New York	1 R01 EY03757-01	05/01/81-04/30/84	1	75,230	34,306	109,536

Cataract
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
BHUYAN, KAILASH C Toxic Metabolites of Oxygen in Cataractogenesis Mount Sinai School of Medicine/Ophthalmology New York, New York	2 R01 EY03012–04	09/01/78–08/31/86	6	101,804	48,152	149,956
BISTNER, STEPHEN I Hereditary Cataract; Anatomic-Metabolic Changes University of Minnesota, Minneapolis-St Paul/Small Animal Clinical Sciences Minneapolis, Minnesota	5 R01 EY02613–03	09/01/78–06/30/82	5	0	0	0
BUNCE, GEORGE E Cataract from a Vegetable Protein Based Diet Virginia Polytechnic Institute and State University/ Biochemistry and Nutrition Blacksburg, Virginia	5 R01 EY01060–11	04/01/79–03/31/82	4	35,032	17,342	52,374
CANDIA, OSCAR A Electrolyte and Fluid Transport in Ocular Membranes Mount Sinai School of Medicine/Ophthalmology New York, New York	2 R01 EY00160–11	12/01/76–11/30/85	1	141,697	67,419	209,116
CARPENTER, FREDERICK H Mechanism of Leucine Aminopeptidase University of California, Berkeley/Biochemistry Berkeley, California	5 R01 EY00813–10	05/01/76–05/30/82	1	0	0	0
CENEDELLA, RICHARD J Lens Sterol Metabolism and the U18666A Induced Cataract Kirksville College of Osteopathic Medicine/Biochemistry Kirksville, Missouri	2 R01 EY02568–04	08/01/78–06/30/86	6	31,832	10,847	42,679
CHAN, FRANK Y Lens Regeneration in Adult Newts Wichita State University/Health Sciences Wichita, Kansas	5 R01 EY02663–03	02/01/78–01/31/81	1	0	0	0
CHEN, JOHN H Genetic Cataract and Other Lens Disorders New York University/Biochemistry New York, New York	2 R01 EY03173–03	03/01/79–11/30/85	5	67,346	37,422	104,768
CHENG, HUNG Cataract Management--A Randomized Controlled Trial Oxford Area Health Authority/Ophthalmology Oxford, United Kingdom	5 R01 EY02677–02	09/01/79–12/31/82	7	114,803	0	114,803
CHURCH, ROBERT L Genetics and Biochemistry of the Lens in Cell Culture W. Alton Jones Cell Science Center Lake Placid, New York	7 R01 EY04065–01	01/01/81–12/31/83	1	58,605	36,227	94,832
CHYLACK, LEO T, JR Lens Metabolism and Cataract Formation Harvard University/Ophthalmology Boston, Massachusetts	5 R01 EY01276–08	02/01/77–01/31/85	4	145,273	64,691	209,964
CHYLACK, LEO T, JR Cooperative Cataract Research Consortium Massachusetts Eye and Ear Infirmary/Ophthalmology Boston, Massachusetts	5 R10 EY03247–02	08/20/80–07/31/83	3	166,539	36,846	203,385

Cataract
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
COHEN, WILLIAM Diabetic Cataract: Prevention by Photoaffinity Drugs Tulane University of Louisiana/Biochemistry New Orleans, Louisiana	5 R01 EY03356-02	04/01/80- 03/31/83	4	48,482	17,700	66,182
COLES, WILLIAM H Superoxide Dismutases of the Anterior Ocular Tissues Emory University/Ophthalmology Atlanta, Georgia	1 R01 EY03923-01	05/01/81- 04/30/84	6	60,159	2,043	62,202
COTLIER, EDWARD M Biochemical Studies in Normal and Cataractous Lenses Yale University/Ophthalmology and Visual Science New Haven, Connecticut	2 R01 EY02490-05	08/01/78- 07/31/84	3	140,013	71,290	211,303
COULTER, JOHN B, III Biochemical Interactions of Insulin with the Lens Scott and White Memorial Hospital/Research Temple, Texas	3 R01 EY00404-09S1	07/01/78- 09/30/81	4	3,677	1,988	5,665
CRABBE, M JAMES Enzyme Mechanisms in Ocular Diabetic Diseases University of Oxford/Nuffield Laboratory of Ophthalmology Oxford, United Kingdom	5 R01 EY03440-02	09/30/80- 09/29/83	4	19,985	0	19,985
DILLON, JAMES P Investigation of the Effect of Light on the Lens Columbia University/Ophthalmology New York, New York	2 R01 EY02283-04	12/01/77- 11/30/85	6	62,923	31,008	93,931
DONLON, JOHN V, JR Stress Response to Eye Surgery: Plasma Catecholamines Massachusetts Eye and Ear Infirmary/Anesthesia Boston, Massachusetts	5 R01 EY03241-02	07/01/80- 06/30/83	7	27,587	10,138	37,725
DOUGHTY, CLYDE C Cataracts and Aldose Reductase Regulation University of Illinois Medical Center/Preventive Medicine and Community Health Chicago, Illinois	2 R01 EY00449-10	04/01/78- 03/31/84	4	45,222	27,585	72,807
DOUGHTY, CLYDE C Cataract Enzyme Aldose Reductase Active Site University of Illinois Medical Center/Biological Chemistry Chicago, Illinois	5 R01 EY03025-03	04/01/79- 03/31/82	4	32,762	19,985	52,747
FARNSWORTH, PATRICIA N Comparative Study of Aging of the Crystalline Lens College of Medicine and Dentistry of New Jersey/ Ophthalmology Newark, New Jersey	5 R01 EY01533-07	07/01/77- 06/30/82	1	67,966	51,266	119,232
FU, S JOSEPH Progression of Cataractogenesis and Possible Reversal College of Medicine and Dentistry of New Jersey/ Biochemistry Newark, New Jersey	5 R01 EY01156-07	04/01/78- 03/31/83	4	64,527	46,259	110,786
GARCIA-CASTINEIRAS, SIXTO Structural Biochemistry of Lens Color and Fluorescence University of Puerto Rico Medical Sciences/Ophthalmology San Juan, Puerto Rico	5 R01 EY03380-02	04/01/80- 03/31/83	3	38,304	0	38,304

Cataract
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
GELATT, KIRK N Biochemical Studies in Congenital Cataracts University of Florida/Special Clinical Sciences Gainesville, Florida	2 R01 EY02199-04	05/01/78–06/30/85	5	50,111	19,795	69,906
GIBLIN, FRANK J Role of Sulfhydryl Groups in X-Ray and Other Cataracts Oakland University Rochester, Michigan	5 R23 EY03637-02	05/01/80–04/30/83	3	35,100	14,602	49,702
GILLIS, M KATHRYN Dynamics of the Sorbitol Pathway in the Lens Massachusetts Eye and Ear Infirmary/Ophthalmology Boston, Massachusetts	1 R23 EY03607-01	02/01/81–03/31/84	4	34,332	12,435	46,767
GOLDBERG, EUGENE P Intraocular Lens Coatings to Prevent Cornea Damage University of Florida/Materials Science and Engineering Gainesville, Florida	5 R01 EY02063-03	06/01/78–12/31/81	7	0	0	0
GOLDSTEIN, IRA M Inflammation Due to Prosthetic Intraocular Lenses University of California, San Francisco/Medicine San Francisco, California	5 R01 EY03768-02	09/01/80–12/31/81	7	20,621	3,668	24,289
GONSALVES, NEIL I Eye and Lens Development in the Anophthalmic Mouse Rhode Island College/Biology Providence, Rhode Island	5 R01 EY02336-03	03/01/78–06/30/81	5	0	0	0
GOODENOUGH, DANIEL A Lens Metabolic Cooperation, Gap Junctions and Cataract Harvard University/Anatomy Boston, Massachusetts	2 R01 EY02430-04	03/01/78–02/28/86	1	98,419	110,026	208,445
GOOSEY, JOHN D Photodynamic Modifications of Lens Crystallins University of Texas Health Sciences Center, Houston/ Ophthalmology Houston, Texas	1 R01 EY03869-01	09/01/81–08/31/84	6	48,597	9,976	58,573
GORTHY, WILLIS C Morphological and Histochemical Studies of Cataracts Colorado State University/Anatomy Fort Collins, Colorado	3 R01 EY00378-11S1	11/01/77–10/31/81	3	2,942	1,301	4,243
GREBER, ISAAC Ultrasonic Volume Measurement of the Lens Case Western Reserve University/Mechanical and Aerospace Engineering Cleveland, Ohio	1 R01 EY03251-01A1	02/01/81–01/31/84	7	102,630	52,377	155,007
HARDING, CLIFFORD V Cell Biology of the Normal and Cataractous Lens Wayne State University/Ophthalmology Detroit, Michigan	5 R01 EY01874-05	02/01/77–01/31/85	1	69,679	29,177	98,856
HERSH, ROBERT T Properties of Alpha Crystallin of the Lens University of Kansas, Lawrence/Biochemistry Lawrence, Kansas	5 R01 EY01702-03	06/01/76–05/31/81	1	0	0	0

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Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
HIGHTOWER, KENNETH R The Role of Cations in Cataract Development Oakland University/Biological Sciences Rochester, Michigan	1 R01 EY03681-01	05/01/81- 04/30/84	1	60,736	23,884	84,620
HORWITZ, JOSEPH Biophysical and Biochemical Studies of Lens Proteins University of California, Los Angeles/Jules Stein Eye Institute Los Angeles, California	5 R01 EY01622-06	06/01/79- 05/31/84	3	47,190	15,572	62,762
HORWITZ, JOSEPH Analysis of Microdissected Cataractous Human Lenses University of California, Los Angeles/Jules Stein Eye Institute Los Angeles, California	1 R01 EY03897-01	08/01/81- 07/31/84	3	64,979	11,773	76,752
JEDZINIAK, JUDITH A Isolation/Characterization of Proteins from Human Lens Massachusetts Eye and Ear Infirmary/Ophthalmology Boston, Massachusetts	5 R01 EY01964-03	04/01/77- 11/30/80	1	0	0	0
JEDZINIAK, JUDITH A Aldehyde Metabolism in the Lens Massachusetts Eye and Ear Infirmary/Howe Laboratory of Ophthalmology Boston, Massachusetts	1 R01 EY03565-01	12/01/80- 11/30/85	4	99,127	38,894	138,021
JERNIGAN, HOWARD M Nitrogen Metabolism in the Crystalline Lens University of Tennessee Center for Health Science/Biochemistry Memphis, Tennessee	5 R01 EY02665-03	09/30/79- 09/29/82	1	32,563	13,478	46,041
KABASAWA, IZUMI Aging Effects in Cataractous Lens Proteins Juntendo University/Ophthalmology Tokyo, Japan	2 R01 EY02900-04	07/01/78- 06/30/83	3	10,100	0	10,100
KERN, HAROLD L Characterization of Transport-Proteins in the Lens Yeshiva University/Ophthalmology New York, New York	5 R01 EY00268-17	09/01/78- 08/31/83	1	91,916	78,532	170,448
KORETZ, JANE F Crystalline Lens Dynamics During Accommodation Rensselaer Polytechnic Institute/Biology Troy, New York	2 R01 EY02195-04	02/01/78- 03/31/85	7	26,591	13,589	40,180
KUCK, JOHN F, JR Lens Metabolism in Normal and Precataractous States Emory University/Ophthalmology Atlanta, Georgia	5 R01 EY00260-19	09/01/79- 08/31/83	3	73,102	40,757	113,859
LAVERS, GENE C Lens Cataract and RNA Modification New York University/Biochemistry New York, New York	2 R01 EY02352-04	01/01/78- 12/31/85	1	45,252	20,924	66,176
LERMAN, SIDNEY Lens Proteins and Fluorescence: In Vivo/In Vitro Study Emory University/Ophthalmology Atlanta, Georgia	2 R01 EY01575-07	06/01/78- 05/31/86	3	138,205	40,205	178,410

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Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
LI, LU-KU Interactions of Lens Proteins and Subunits Columbia University/Ophthalmology New York, New York	2 R01 EY00032-10	04/01/78- 03/31/86	3	70,992	37,341	108,333
MAISEL, HARRY A Study of Structural Lens Proteins Wayne State University/Anatomy Detroit, Michigan	2 R01 EY01417-08	09/01/77- 08/31/85	1	63,953	29,240	93,193
MAISEL, HARRY The Plasma Membrane of the Lens Cells Wayne State University/Anatomy Detroit, Michigan	5 R01 EY01855-05	02/01/77- 01/31/84	1	55,471	25,738	81,209
MANSKI, WLADYSLAW J Immunological Study of Normal and Pathologic Ocular Lens Columbia University/Ophthalmology New York, New York	2 R01 EY00189-25A1	06/01/77- 11/30/85	1	135,673	71,643	207,316
MARAK, GEORGE E, JR Lens-Induced Uveitis and Sympathetic Ophthalmia Georgetown University/Ophthalmology Washington, D.C.	5 R01 EY00887-09	12/01/78- 11/30/81	7	58,343	27,966	86,309
MATHIAS, RICHARD T Volume Regulation in Normal and Cataractous Lenses Rush University/Physiology Chicago, Illinois	5 R01 EY03095-03	07/09/79- 06/30/82	7	47,548	20,929	68,477
MAURER, DAPHNE M Vision After Congenital Cataract Treatment Hospital for Sick Children/Ophthalmology and Psychology Toronto, Canada	1 R01 EY03475-01A1	09/30/81- 09/29/84	5	43,121	0	43,121
MC AVOY, JOHNSTON W Study Lens Cell Differentiation University of Sydney/Histology and Embryology Sydney, Australia	5 R01 EY03177-03	04/01/79- 03/31/82	1	22,467	0	22,467
MC DEVITT, DAVID S Crystallins in Normal and Regenerated Newt Eye Lenses University of Pennsylvania/Animal Biology Philadelphia, Pennsylvania	5 R01 EY02534-03	09/01/78- 08/31/81	1	0	0	0
MEGAW, JUDITH M Liposomal Intraocular Drug Delivery in Vitro and in Vivo Emory University/Ophthalmology Atlanta, Georgia	1 R23 EY03847-01	08/01/81- 07/31/84	4	36,541	15,664	52,205
MELTZER, DAVID W Energy Dispersive X-Ray Analysis of Implant Lenses Washington University/Ophthalmology St. Louis, Missouri	1 R01 EY03615-01	12/01/80- 11/30/82	7	45,781	25,180	70,961
MOSTAFAPOUR, M KAZEM Beta-Crystallins in Normal and Cataractous Lenses Oakland University Rochester, Michigan	5 R01 EY03319-02	04/01/80- 03/31/83	1	49,681	21,023	70,704

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Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
MUGGLETON-HARRIS, AUDREY L Cataract and Lens Deterioration Due to Maturation Worcester Polytechnic Institute/Life Sciences Worcester, Massachusetts	2 R01 EY02523-04	08/01/78- 07/31/84	5	81,360	39,198	120,558
ORKIN, ROSLYN W Biochemical Organization of Ocular Basement Membranes Massachusetts General Hospital/Developmental Biology Laboratory Boston, Massachusetts	1 R01 EY03810-01	08/01/81- 07/31/84	4	58,871	15,982	74,853
ORTWERTH, BERYL J Lens Inhibitor Proteins and Cataractogenesis University of Missouri, Columbia/Ophthalmology Columbia, Missouri	5 R01 EY02035-05	07/01/77- 06/30/82	3	53,620	10,188	63,808
PATERSON, CHRISTOPHER A Regulation of Lens Cation Balance and Distribution University of Colorado Health Sciences Center/ Ophthalmology Denver, Colorado	5 R01 EY00506-13	05/01/75- 04/30/85	1	86,561	34,726	121,287
PATTERSON, JOHN W Lens Fiber Formation University of Connecticut Health Center/Physiology Farmington, Connecticut	5 R01 EY02128-03	05/01/78- 04/30/81	1	0	0	0
PATTERSON, JOHN W The Lens Lumen or Fibroepithelial Space University of Connecticut Health Center/Physiology Farmington, Connecticut	1 R01 EY03820-01	08/01/81- 07/31/84	1	59,611	23,362	82,973
PFEIFFER, DOUGLAS R Lipids of Lenticular Membranes University of Minnesota, Minneapolis-St Paul/Hormel Institute Minneapolis, Minnesota	5 R01 EY02307-03	05/01/78- 03/31/82	1	0	0	0
PRCHAL, JOSEF T Cataract Therapy-RBC Abnormalities--Diabetics/Normals University of Alabama, Birmingham/Medicine Birmingham, Alabama	5 R01 EY02432-04	08/01/78- 07/31/82	4	61,140	22,484	83,624
RAE, JAMES L Normal and Cataractous Lens Cell Bioelectric Properties Rush University/Physiology Chicago, Illinois	5 R01 EY03282-03	06/05/79- 05/31/83	1	52,656	36,300	88,956
RAFFERTY, NANCY S Etiology of Cataract Northwestern University/Anatomy and Cell Biology Chicago, Illinois	2 R01 EY00698-11	04/01/81- 03/31/86	7	61,664	30,818	92,482
RATHBUN, WILLIAM B Glutathione Metabolism in Ocular Tissues University of Minnesota, Minneapolis-St Paul/Ophthalmology Minneapolis, Minnesota	5 R01 EY01197-08	01/06/77- 12/31/81	6	93,499	39,101	132,600
REDDAN, JOHN R Control of Cell Division in the Ocular Lens Oakland University/Biological Sciences Rochester, Michigan	5 R01 EY00362-15	09/01/76- 08/31/84	1	68,507	25,897	94,404

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Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
REDDY, VENKAT N Intraocular Fluid Dynamics Oakland University Rochester, Michigan	5 R01 EY00483–12	09/01/78– 08/31/82	3	0	0	0
REDDY, VENKAT N Study of Intraocular Transport Oakland University Rochester, Michigan	5 R01 EY00484–14	05/01/79– 04/30/84	3	132,362	55,994	188,356
REDDY, VENKAT N Proteins of Normal and Cataractous Lenses Oakland University Rochester, Michigan	2 R01 EY02027–05	08/01/77– 07/31/86	3	57,299	10,620	67,919
REYER, RANDALL W Lens and Neural Retina Development and Regeneration West Virginia University/Anatomy Morgantown, West Virginia	5 R01 EY00196–24	01/01/78– 09/30/82	1	22,920	8,852	31,772
RICHARDS, RICHARD D Histochemical and Biochemical Studies of X-Ray Cataracts University of Maryland, Baltimore/Ophthalmology Baltimore, Maryland	2 R01 EY01292–07	09/01/78– 08/31/84	6	78,307	47,838	126,145
ROTHSTEIN, HOWARD Hormonal Control of Lens Growth Wayne State University/Ophthalmology Detroit, Michigan	5 R01 EY02492–03	02/01/78– 01/31/81	1	0	0	0
ROY, DEBDUTTA Lens Plasma Membrane Columbia University/Ophthalmology New York, New York	5 R01 EY03121–03	07/01/79– 06/30/82	1	44,994	33,211	78,205
RUBIN, NORMAN A Factors Promoting Lens Fiber Differentiation in Mice Brooklyn College/Biology New York, New York	1 R01 EY03813–01	08/01/81– 07/31/84	1	34,548	19,015	53,563
RYAN, JON M A Study of Lens Cell Division and Differentiation Ilt Research Institute/Life Sciences Research Division Chicago, Illinois	5 R01 EY02298–03	05/01/78– 04/30/81	1	0	0	0
SADOGLU, PERIHAN Eye Development and Cataract Formation State University New York, Stony Brook/Biological Sciences Stony Brook, New York	5 R01 EY01892–03	02/01/77– 01/31/81	1	0	0	0
SCHACHAR, RONALD A Raman Spectroscopy of the Lens of the Eye University of Texas, Arlington/Physics Arlington, Texas	5 R01 EY03410–02	07/01/79– 11/30/81	3	0	0	0
SCHWARTZ, DAVID E Anterior Lens Capsule Basement Membrane Collagen Rush University/Biochemistry Chicago, Illinois	1 R23 EY04017–01	05/01/81– 04/30/84	1	33,500	11,606	45,106

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Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
SHEARER, THOMAS R Mechanism of Selenium-Induced Cataract University of Oregon Health Sciences Center/Biochemistry Portland, Oregon	1 R01 EY03600-01A1	09/30/81- 09/29/84	6	50,979	15,993	66,972
SMITH, RONALD E Effects of Intraocular Lenses on Corneal Endothelium University of Southern California/Ophthalmology Los Angeles, California	5 R01 EY02043-03	09/09/77- 12/31/83	7	29,104	14,723	43,827
SOUTHREN, A LOUIS Studies of Glucocorticoid-Induced Cataract New York Medical College/Medicine Valhalla, New York	3 R01 EY02652-03S1	08/01/78- 02/28/82	6	4,450	2,715	7,165
SPECTOR, ABRAHAM Ocular Lens Studies Columbia University/Ophthalmology New York, New York	5 R01 EY00423-13	12/01/78- 11/30/83	1	198,811	109,895	308,706
SPECTOR, ABRAHAM Effects of Aging on the Ocular Lens Columbia University/Ophthalmology New York, New York	5 R01 EY00759-10	12/01/76- 11/30/81	3	112,024	64,642	176,666
SRIVASTAVA, SATISH K Metabolic Studies in Normal and Cataractous Lenses University of Texas Medical Branch, Galveston/Human Biological Chemistry and Genetics Galveston, Texas	2 R01 EY01677-07	06/01/78- 05/31/84	4	53,398	18,155	71,553
STEVENS, VICTOR J Protein Glycosylation in Diabetic Lens and Nerve State University of New York, Buffalo/Physiology Buffalo, New York	5 R01 EY03777-02	09/01/80- 06/30/82	4	32,839	15,305	48,144
STREETEN, BARBARA W The Fiber-Gel Structure of the Ocular Zonule Upstate Medical Center/Pathology Syracuse, New York	5 R01 EY01602-07	06/30/78- 06/29/83	5	48,684	20,395	69,079
SWANSON, ARNOLD A Proteolysis in Normal and Senile Cataract Lens Medical University of South Carolina/Biochemistry Charleston, South Carolina	5 R01 EY00429-13	05/01/75- 04/30/85	3	41,261	10,776	52,037
TAKEMOTO, LARRY J Lens Membrane in Relation to Cataractogenesis Kansas State University/Division of Biology Manhattan, Kansas	5 R01 EY02932-03	06/01/79- 05/31/82	3	64,220	25,397	89,617
TANAKA, TOYOICHI Phase Separation of Cytoplasma in Sugar Cataracts Massachusetts Institute of Technology/Physics Cambridge, Massachusetts	5 R01 EY01696-06	07/01/79- 06/30/82	4	24,806	24,957	49,763
TANAKA, TOYOICHI Quantitative Characterization of Lens Opacities Massachusetts Institute of Technology/Physics Cambridge, Massachusetts	5 R01 EY02433-03	04/01/78- 03/31/81	7	0	0	0

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Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
TAO, ROBERT V Biochemistry and Metabolism of Lenticular Sphingolipids University of Illinois Medical Center/Ophthalmology Chicago, Illinois	5 R01 EY01821-05	02/01/77-01/31/83	3	42,277	27,626	69,903
TAYLOR, ALLEN Lens Leucine Aminopeptidase--Characterization and Function Williams College/Chemistry Williamstown, Massachusetts	5 R01 EY02842-03	12/01/78-11/30/82	3	32,418	22,702	55,120
TREVITHICK, JOHN R Eye Lens Epithelial Cell Differentiation and Cataract University of Western Ontario/Department of Biochemistry London, Canada	5 R01 EY01927-05	05/01/77-04/30/83	1	56,775	0	56,775
UNAKAR, NALIN J Morphological Studies in Experimental Cataracts Oakland University/Biological Sciences Rochester, Michigan	5 R01 EY01680-06	06/01/79-05/31/82	4	43,889	18,102	61,991
VARMA, SHAMBHU D Aldose Reductase in Ocular Pathology University of Maryland, Baltimore/Ophthalmology Baltimore, Maryland	2 R01 EY02160-04	02/01/78-01/31/86	4	67,726	35,108	102,834
WAGNER, BETTY J Proteolytic Enzymes and Cataractogenesis College of Medicine and Dentistry of New Jersey/ Ophthalmology Newark, New Jersey	5 R01 EY02299-04	01/01/78-12/31/82	3	58,393	40,718	99,111
WEINSIEDER, ALLAN Extra-Ocular Factors Affecting Lens Growth University of Louisville/Ophthalmology Louisville, Kentucky	7 R01 EY03774-01	09/01/80-06/30/81	1	0	0	0
WORGUL, BASIL V Radiation Cataractogenesis Columbia University/Ophthalmology New York, New York	2 R01 EY02648-04	09/01/78-08/31/84	6	69,839	47,211	117,050
YU, NAI-TENG Comparative Raman Studies of Human and Animal Lenses Georgia Institute of Technology/School of Chemistry Atlanta, Georgia	5 R01 EY01746-06	05/01/79-04/30/83	3	35,187	21,405	56,592
ZIGMAN, SEYMOUR Near Ultraviolet Light Effects on Ocular Tissues University of Rochester/Surgery Rochester, New York	5 R01 EY00459-12	05/01/77-04/30/82	6	85,634	43,429	129,063
ZWAAN, JOHAN Genetic Controls in Eye Lens Development Massachusetts Eye and Ear Infirmary/Ophthalmology Boston, Massachusetts	5 R01 EY03158-02	09/30/79-01/31/83	5	84,534	38,098	122,632
Total Active Research Grants in this Program in FY 1981: 119 **Total Research Grants in this Program Receiving FY 1981 Funds: 100** **Total FY 1981 Dollars Supporting Research Grants in this Program:**				**6,144,858**	**2,784,423**	**8,929,281**

Cataract
Research Grants Active in FY 1981, Subprogram Listing

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
1. The Normal Lens		
Abraham, Rajender	DNA Size and Genome Organization in Lens Cells Albany Medical College/Institute of Comparison and Human Toxicology	$0
Andrews, John S	Lens Cell Membrane Synthesis and Cataractogenesis Vanderbilt University/Ophthalmology	80,939
Azari, Parviz	Intermolecular Cross-Links in Lens Colorado State University/Biochemistry	58,464
Benedek, George B	Physical and Chemical Basis of Lens Opacity Massachusetts Institute of Technology/Physics	189,762
Bentley, Peter J	Pharmacology of Lenticular Ion Transport Mount Sinai School of Medicine/Ophthalmology	82,518
Bettelheim, Frederick A	The Interaction of Phosphopeptides with Lens Proteins Adelphi University/Chemistry	48,314
Bhat, Suraj P	Gene Expression in the Normal and Cataractous Lens Columbia University/Ophthalmology	109,536
Candia, Oscar A	Electrolyte and Fluid Transport in Ocular Membranes Mount Sinai School of Medicine/Ophthalmology	209,116
Carpenter, Frederick H	Mechanism of Leucine Aminopeptidase University of California, Berkeley/Biochemistry	0
Chan, Frank Y	Lens Regeneration in Adult Newts Wichita State University/Health Sciences	0
Church, Robert L	Genetics and Biochemistry of the Lens in Cell Culture W. Alton Jones Cell Science Center	94,832
Farnsworth, Patricia N	Comparative Study of Aging of the Crystalline Lens College of Medicine and Dentistry of New Jersey/Ophthalmology	119,232
Goodenough, Daniel A	Lens Metabolic Cooperation, Gap Junctions and Cataract Harvard University/Anatomy	208,445
Harding, Clifford V	Cell Biology of the Normal and Cataractous Lens Wayne State University/Ophthalmology	98,856
Hersh, Robert T	Properties of Alpha Crystallin of the Lens University of Kansas, Lawrence/Biochemistry	0
Hightower, Kenneth R	The Role of Cations in Cataract Development Oakland University/Biological Sciences	84,620
Jedziniak, Judith A	Isolation/Characterization of Proteins from Human Lens Massachusetts Eye and Ear Infirmary/Ophthalmology	0
Jernigan, Howard M	Nitrogen Metabolism in the Crystalline Lens University of Tennessee Center for Health Science/Biochemistry	46,041
Kern, Harold L	Characterization of Transport-Proteins in the Lens Yeshiva University/Ophthalmology	170,448
Lavers, Gene C	Lens Cataract and RNA Modification New York University/Biochemistry	66,176
Maisel, Harry	A Study of Structural Lens Proteins Wayne State University/Anatomy	93,193
Maisel, Harry	The Plasma Membrane of the Lens Cells Wayne State University/Anatomy	81,209
Manski, Wladyslaw J	Immunological Study of Normal and Pathologic Ocular Lens Columbia University/Ophthalmology	207,316

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Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Mc Avoy, Johnston W	Study Lens Cell Differentiation University of Sydney/Histology and Embryology	22,467
Mc Devitt, David S	Crystallins in Normal and Regenerated Newt Eye Lenses University of Pennsylvania/Animal Biology	0
Mostafapour, M Kazem	Beta-Crystallins in Normal and Cataractous Lenses Oakland University	70,704
Paterson, Christopher A	Regulation of Lens Cation Balance and Distribution University of Colorado Health Sciences Center/Ophthalmology	121,287
Patterson, John W	Lens Fiber Formation University of Connecticut Health Center/Physiology	0
Patterson, John W	The Lens Lumen or Fibroepithelial Space University of Connecticut Health Center/Physiology	82,973
Pfeiffer, Douglas R	Lipids of Lenticular Membranes University of Minnesota, Minneapolis-St Paul/Hormel Institute	0
Rae, James L	Normal and Cataractous Lens Cell Bioelectric Properties Rush University/Physiology	88,956
Reddan, John R	Control of Cell Division in the Ocular Lens Oakland University/Biological Sciences	94,404
Reyer, Randall W	Lens and Neural Retina Development and Regeneration West Virginia University/Anatomy	31,772
Rothstein, Howard	Hormonal Control of Lens Growth Wayne State University/Ophthalmology	0
Roy, Debdutta	Lens Plasma Membrane Columbia University/Ophthalmology	78,205
Rubin, Norman A	Factors Promoting Lens Fiber Differentiation in Mice Brooklyn College/Biology	53,563
Ryan, Jon M	A Study of Lens Cell Division and Differentiation Ilt Research Institute/Life Sciences Research Division	0
Sadoglu, Perihan	Eye Development and Cataract Formation State University New York, Stony Brook/Biological Sciences	0
Schwartz, David E	Anterior Lens Capsule Basement Membrane Collagen Rush University/Biochemistry	45,106
Spector, Abraham	Ocular Lens Studies Columbia University/Ophthalmology	308,706
Trevithick, John R	Eye Lens Epithelial Cell Differentiation and Cataract University of Western Ontario/Department of Biochemistry	56,775
Weinsieder, Allan	Extra-Ocular Factors Affecting Lens Growth University of Louisville/Ophthalmology	0

Total Active Research Grants in this Subprogram in FY 1981: 42
Total Research Grants in this Subprogram Receiving FY 1981 Funds: 30
Total FY 1981 Dollars Supporting Research Grants in this Subprogram: 3,103,935

2. Epidemiology of Cataract

Total Active Research Grants in this Subprogram in FY 1981: 0
Total Research Grants in this Subprogram Receiving FY 1981 Funds: 0
Total FY 1981 Dollars Supporting Research Grants in this Subprogram: 0

Cataract
Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
3. Senile Cataract		
ALBERS-JACKSON, BARBARA	Lipid Metabolism of Normal, Aging, and Cataractous Lens Tennessee Technological University/Chemistry	56,809
AUGUSTEYN, ROBERT C	The Mechanism of Senile Cataract Formation University of Melbourne/Biochemistry	0
BAGCHI, MIHIR	Cell Biology of Mammalian Eye Lens in Culture Wayne State University/Anatomy	53,005
BETTELHEIM, FREDERICK A	Light Scattering Parameters of Cataractous Lenses Adelphi University/Chemistry	71,696
CHYLACK, LEO T, JR	Cooperative Cataract Research Consortium Massachusetts Eye and Ear Infirmary/Ophthalmology	203,385
COTLIER, EDWARD M	Biochemical Studies in Normal and Cataractous Lenses Yale University/Ophthalmology and Visual Science	211,303
GARCIA-CASTINEIRAS, SIXTO	Structural Biochemistry of Lens Color and Fluorescence University of Puerto Rico Medical Sciences/Ophthalmology	38,304
GIBLIN, FRANK J	Role of Sulfhydryl Groups in X-Ray and Other Cataracts Oakland University	49,702
GORTHY, WILLIS C	Morphological and Histochemical Studies of Cataracts Colorado State University/Anatomy	4,243
HORWITZ, JOSEPH	Biophysical and Biochemical Studies of Lens Proteins University of California, Los Angeles/Jules Stein Eye Institute	62,762
HORWITZ, JOSEPH	Analysis of Microdissected Cataractous Human Lenses University of California, Los Angeles/Jules Stein Eye Institute	76,752
KABASAWA, IZUMI	Aging Effects in Cataractous Lens Proteins Juntendo University/Ophthalmology	10,100
KUCK, JOHN F, JR	Lens Metabolism in Normal and Precataractous States Emory University/Ophthalmology	113,859
LERMAN, SIDNEY	Lens Proteins and Fluorescence: In Vivo/In Vitro Study Emory University/Ophthalmology	178,410
LI, LU-KU	Interactions of Lens Proteins and Subunits Columbia University/Ophthalmology	108,333
ORTWERTH, BERYL J	Lens Inhibitor Proteins and Cataractogenesis University of Missouri, Columbia/Ophthalmology	63,808
REDDY, VENKAT N	Intraocular Fluid Dynamics Oakland University	0
REDDY, VENKAT N	Study of Intraocular Transport Oakland University	188,356
REDDY, VENKAT N	Proteins of Normal and Cataractous Lenses Oakland University	67,919
SCHACHAR, RONALD A	Raman Spectroscopy of the Lens of the Eye University of Texas, Arlington/Physics	0
SPECTOR, ABRAHAM	Effects of Aging on the Ocular Lens Columbia University/Ophthalmology	176,666
SWANSON, ARNOLD A	Proteolysis in Normal and Senile Cataract Lens Medical University of South Carolina/Biochemistry	52,037
TAKEMOTO, LARRY J	Lens Membrane in Relation to Cataractogenesis Kansas State University/Division of Biology	89,617

Cataract
Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
TAO, ROBERT V	Biochemistry and Metabolism of Lenticular Sphingolipids University of Illinois Medical Center/Ophthalmology	69,903
TAYLOR, ALLEN	Lens Leucine Aminopeptidase--Characterization and Function Williams College/Chemistry	55,120
WAGNER, BETTY J	Proteolytic Enzymes and Cataractogenesis College of Medicine and Dentistry of New Jersey/Ophthalmology	99,111
YU, NAI-TENG	Comparative Raman Studies of Human and Animal Lenses Georgia Institute of Technology/School of Chemistry	56,592
Total Active Research Grants in this Subprogram in FY 1981: 27 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 24** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**2,157,792**

4. Diabetic and Metabolic Cataract

BEYER-MEARS, ANNETTE	Aldose Reductase Inhibitors Administered Topically College of Medicine and Dentistry of New Jersey/Physiology	96,829
BUNCE, GEORGE E	Cataract from a Vegetable Protein Based Diet Virginia Polytechnic Institute and State University/Biochemistry and Nutrition	52,374
CHYLACK, LEO T, JR	Lens Metabolism and Cataract Formation Harvard University/Ophthalmology	209,964
COHEN, WILLIAM	Diabetic Cataract: Prevention by Photoaffinity Drugs Tulane University of Louisiana/Biochemistry	66,182
COULTER, JOHN B, III	Biochemical Interactions of Insulin with the Lens Scott and White Memorial Hospital/Research	5,665
CRABBE, M JAMES	Enzyme Mechanisms in Ocular Diabetic Diseases University of Oxford/Nuffield Laboratory of Ophthalmology	19,985
DOUGHTY, CLYDE C	Cataracts and Aldose Reductase Regulation University of Illinois Medical Center/Preventive Medicine and Community Health	72,807
DOUGHTY, CLYDE C	Cataract Enzyme Aldose Reductase Active Site University of Illinois Medical Center/Biological Chemistry	52,747
FU, S JOSEPH	Progression of Cataractogenesis and Possible Reversal College of Medicine and Dentistry of New Jersey/Biochemistry	110,786
GILLIS, M KATHRYN	Dynamics of the Sorbitol Pathway in the Lens Massachusetts Eye and Ear Infirmary/Ophthalmology	46,767
JEDZINIAK, JUDITH A	Aldehyde Metabolism in the Lens Massachusetts Eye and Ear Infirmary/Howe Laboratory of Ophthalmology	138,021
MEGAW, JUDITH M	Liposomal Intraocular Drug Delivery in Vitro and in Vivo Emory University/Ophthalmology	52,205
ORKIN, ROSLYN W	Biochemical Organization of Ocular Basement Membranes Massachusetts General Hospital/Developmental Biology Laboratory	74,853
PRCHAL, JOSEF T	Cataract Therapy-RBC Abnormalities--Diabetics/Normals University of Alabama, Birmingham/Medicine	83,624
SRIVASTAVA, SATISH K	Metabolic Studies in Normal and Cataractous Lenses University of Texas Medical Branch, Galveston/Human Biological Chemistry and Genetics	71,553
STEVENS, VICTOR J	Protein Glycosylation in Diabetic Lens and Nerve State University of New York, Buffalo/Physiology	48,144

Cataract
Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
TANAKA, TOYOICHI	Phase Separation of Cytoplasma in Sugar Cataracts Massachusetts Institute of Technology/Physics	49,763
UNAKAR, NALIN J	Morphological Studies in Experimental Cataracts Oakland University/Biological Sciences	61,991
VARMA, SHAMBHU D	Aldose Reductase in Ocular Pathology University of Maryland, Baltimore/Ophthalmology	102,834
Total Active Research Grants in this Subprogram in FY 1981: 19 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 19** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**1,417,094**

5. Nongenetic Congenital and Genetic Cataracts and Dislocated Lenses

BISTNER, STEPHEN I	Hereditary Cataract; Anatomic-Metabolic Changes University of Minnesota, Minneapolis-St Paul/Small Animal Clinical Sciences	0
CHEN, JOHN H	Genetic Cataract and Other Lens Disorders New York University/Biochemistry	104,768
GELATT, KIRK N	Biochemical Studies in Congenital Cataracts University of Florida/Special Clinical Sciences	69,906
GONSALVES, NEIL I	Eye and Lens Development in the Anophthalmic Mouse Rhode Island College/Biology	0
MAURER, DAPHNE M	Vision After Congenital Cataract Treatment Hospital for Sick Children/Ophthalmology and Psychology	43,121
MUGGLETON-HARRIS, AUDREY L	Cataract and Lens Deterioration Due to Maturation Worcester Polytechnic Institute/Life Sciences	120,558
STREETEN, BARBARA W	The Fiber-Gel Structure of the Ocular Zonule Upstate Medical Center/Pathology	69,079
ZWAAN, JOHAN	Genetic Controls in Eye Lens Development Massachusetts Eye and Ear Infirmary/Ophthalmology	122,632
Total Active Research Grants in this Subprogram in FY 1981: 8 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 6** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**530,064**

6. Cataract Induced by Environmental and Toxic Effects

BHUYAN, KAILASH C	Toxic Metabolites of Oxygen in Cataractogenesis Mount Sinai School of Medicine/Ophthalmology	149,956
CENEDELLA, RICHARD J	Lens Sterol Metabolism and the U18666A Induced Cataract Kirksville College of Osteopathic Medicine/Biochemistry	42,679
COLES, WILLIAM H	Superoxide Dismutases of the Anterior Ocular Tissues Emory University/Ophthalmology	62,202
DILLON, JAMES P	Investigation of the Effect of Light on the Lens Columbia University/Ophthalmology	93,931
GOOSEY, JOHN D	Photodynamic Modifications of Lens Crystallins University of Texas Health Sciences Center, Houston/Ophthalmology	58,573
RATHBUN, WILLIAM B	Glutathione Metabolism in Ocular Tissues University of Minnesota, Minneapolis-St Paul/Ophthalmology	132,600
RICHARDS, RICHARD D	Histochemical and Biochemical Studies of X-Ray Cataracts University of Maryland, Baltimore/Ophthalmology	126,145

Cataract
Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
SHEARER, THOMAS R	Mechanism of Selenium-Induced Cataract University of Oregon Health Sciences Center/Biochemistry	66,972
SOUTHREN, A LOUIS	Studies of Glucocorticoid-Induced Cataract New York Medical College/Medicine	7,165
WORGUL, BASIL V	Radiation Cataractogenesis Columbia University/Ophthalmology	117,050
ZIGMAN, SEYMOUR	Near Ultraviolet Light Effects on Ocular Tissues University of Rochester/Surgery	129,063
Total Active Research Grants in this Subprogram in FY 1981: 11 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 11** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**986,336**

7. Treatment of Cataract and Correction of Aphakia

CHENG, HUNG	Cataract Management--A Randomized Controlled Trial Oxford Area Health Authority/Ophthalmology	114,803
DONLON, JOHN V, JR	Stress Response to Eye Surgery: Plasma Catecholamines Massachusetts Eye and Ear Infirmary/Anesthesia	37,725
GOLDBERG, EUGENE P	Intraocular Lens Coatings to Prevent Cornea Damage University of Florida/Materials Science and Engineering	0
GOLDSTEIN, IRA M	Inflammation Due to Prosthetic Intraocular Lenses University of California, San Francisco/Medicine	24,289
GREBER, ISAAC	Ultrasonic Volume Measurement of the Lens Case Western Reserve University/Mechanical and Aerospace Engineering	155,007
KORETZ, JANE F	Crystalline Lens Dynamics During Accommodation Rensselaer Polytechnic Institute/Biology	40,180
MARAK, GEORGE E, JR	Lens-Induced Uveitis and Sympathetic Ophthalmia Georgetown University/Ophthalmology	86,309
MATHIAS, RICHARD T	Volume Regulation in Normal and Cataractous Lenses Rush University/Physiology	68,477
MELTZER, DAVID W	Energy Dispersive X-Ray Analysis of Implant Lenses Washington University/Ophthalmology	70,961
RAFFERTY, NANCY S	Etiology of Cataract Northwestern University/Anatomy and Cell Biology	92,482
SMITH, RONALD E	Effects of Intraocular Lenses on Corneal Endothelium University of Southern California/Ophthalmology	43,827
TANAKA, TOYOICHI	Quantitative Characterization of Lens Opacities Massachusetts Institute of Technology/Physics	0
Total Active Research Grants in this Subprogram in FY 1981: 12 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 10** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**734,060**

Total Active Research Grants in this Program in FY 1981: 119 **Total Research Grants in this Program Receiving FY 1981 Funds: 100** **Total FY 1981 Dollars Supporting Research Grants in this Program:**	**8,929,281**

Cataract
Core Grants
Active in 1981

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
KAUFMAN, HERBERT E Pharmacology and External Ocular Diseases Louisiana State University Medical Center, New Orleans/ Ophthalmology New Orleans, Louisiana	5 P30 EY02377-03	04/01/79- 03/31/84	$100,828	$21,156	$121,984
RUBIN, MELVIN L Vision Research Center (Core) University of Florida/Ophthalmology Gainesville, Florida	5 P30 EY02681-03	07/01/79- 06/30/84	100,356	44,722	145,078
RYAN, STEPHEN J Visual Science Research Center Support Estelle Doheny Eye Foundation Los Angeles, California	5 P30 EY03040-03	09/30/79- 09/29/84	64,595	41,163	105,758
VAN HORN, DIANE L Ophthalmic Research Center Medical College of Wisconsin/Ophthalmology Milwaukee, Wisconsin	5 P30 EY01931-05	04/01/77- 03/31/82	4,901	50,141	55,042
Total Active Core Grants in this Program in FY 1981: 4 **Total Core Grants in this Program Receiving FY 1981 Funds: 4** **Total FY 1981 Dollars Supporting Core Grants in this Program:**			**270,680**	**157,182**	**427,862**

Cataract
Institutional National Research Service Awards
Active in FY 1981

Program Director Project Title Institution/Department City, State	Grant Number	Project Period	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
ENOCH, JAY M Clinical Application of Visual Science University of California, Berkeley/Optometry Berkeley, California	5 T32 EY07076-02	07/01/80- 06/30/82	$82,844	$6,282	$89,126
HARDING, CLIFFORD V Cellular Basis of Ocular Disorders Wayne State University/Ophthalmology Detroit, Michigan	5 T32 EY07034-04	07/01/77- 06/30/82	0	0	0
PAUTLER, EUGENE L Ophthalmology Colorado State University/Physiology and Biophysics Fort Collins, Colorado	5 T32 EY07064-03	09/30/79- 09/29/82	40,055	3,190	43,245
Total Active Institutional NRSAs in this Program in FY 1981: 3 **Total Institutional NRSAs in this Program Receiving FY 1981 Funds: 2** **Total FY 1981 Dollars Supporting Institutional NRSAs in this Program:**			**122,899**	**9,472**	**132,371**

Cataract
Individual National Research Service Awards
Active in FY 1981

Name of Fellow, Degree Sponsor Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Stipends Awarded	FY 1981 Other Allowances Awarded	FY 1981 Total Awarded
HAYDEN, JOHN H, PhD Allen, Robert D Cytoskeletal Proteins in the Lens and Cornea Dartmouth College/Biological Sciences Hanover, New Hampshire	5 F32 EY05459-02	05/02/81- 05/01/82	1	$14,040	$5,000	$19,040
MILLER, THOMAS M, PhD Goodenough, Daniel A Cell-Free Synthesis of a Lens Membrane Protein Harvard University/Anatomy Boston, Massachusetts	1 F32 EY05481-01	10/01/80- 01/04/84	1	0	0	0
NICKERSON, JOHN M, PhD Piatigorsky, Joram Lens Cataract Formation: Specific mRNA Changes U.S. National Institutes of Health/Molecular Genetics Bethesda, Maryland	1 F32 EY05572-01	08/01/81-	5	13,380	0	13,380
PETRASH, JONATHAN M, PhD Chen, John H Molecular Studies of Aldose Reductase Gene in Lens Cells New York University/Biochemistry New York, New York	1 F32 EY05596-01	08/01/81- 09/28/82	4	13,380	5,000	18,380
ROHRBACH, DAVID H, PhD Martin, George R The Composition and Construction of Basement Membrane National Institute of Dental Research/Laboratory of Biology and Anomalies Bethesda, Maryland	5 F32 EY05472-02	11/01/80- 06/30/81	1	14,040	340	14,380
SCHUETZE, STEPHEN M, PhD Goodenough, Daniel A Lens Gap Junctions and Metabolic Cooperation Harvard University/Anatomy Boston, Massachusetts	5 F32 EY05337-02	12/01/79- 11/30/80	1	0	0	0
WAINWRIGHT, NORMAN, PhD Clayton, Ruth M The Lens of the Eye: Cellular and Biochemical Studies University of Edinburgh/Genetics Edinburgh, United Kingdom	5 F32 EY05358-02X1	12/01/79- 11/30/81	1	0	0	0
Total Active Individual NRSAs in this Program in FY 1981: 7 **Total Individual NRSAs in this Program Receiving FY 1981 Funds: 4** **Total FY 1981 Dollars Supporting Individual NRSAs in this Program:**				**54,840**	**10,340**	**65,180**

Cataract
Research Career Development Awards
Active in FY 1981

Awardee Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
HORWITZ, JOSEPH Human Lens, Biochemical and Biophysical Properties University of California, Los Angeles/Ophthalmology Los Angeles, California	5 K04 EY00058-05	02/01/77-01/31/82	1	$38,100	$3,048	$41,148
YU, NAI-TENG New Methods for Biomedical Research Georgia Institute of Technology/School of Chemistry Atlanta, Georgia	5 K04 EY00073-05	07/01/76-06/30/81	3	0	0	0
Total Active Research Career Development Awards in this Program in FY 1981: 2						
Total Research Career Development Awards in this Program Receiving FY 1981 Funds: 1						
Total FY 1981 Dollars Supporting Research Career Development Awards in this Program:				**38,100**	**3,048**	**41,148**

Cataract
Research Contracts
Active in FY 1981

Principal Investigator Institution/Department City, State	Contract Number	Project Period	FY 1981 Total Awarded
BORAKER, DAVID K Development of a Pedigreed Strain of Octodon Degus University of Vermont and State Agricultural College/Medical Microbiology Burlington, Vermont	N01 EY52105	10/15/74– 11/30/80	0
REDDY, VENKAT Acquisition of Brunescent Cataracts Oakland University Rochester, Michigan	N01 EY02110	02/01/80– 01/31/83	0

Total Active Contracts in this Program in FY 1981: 2
Total Contracts in this Program Receiving FY 1981 Funds: 0
Total FY 1981 Dollars Supporting Contracts in this Program: 0

Cataract
NEI Intramural Research Projects Active in FY 1981

Principal Investigator Project Title	Project Number	Sub-program	FY 1981 Pro-fessional Salaries	FY 1981 Other Direct Costs	FY 1981 Total Direct Costs
KADOR, PETER/KINOSHITA, JIN H Cataracts	Z01 EY00003-09 LVR	4	$96,506	$138,179	$234,685
NUSSENBLATT, ROBERT Cataracts in Juvenile Guinea Pigs with Allergic Encephalomyelitis	Z01 EY00093-03 CB	4	4,148	17,607	21,755
RUSSELL, PAUL/KINOSHITA, JIN H Chemistry and Metabolism of the Lens	Z01 EY00136-09 LVR	1	65,164	67,249	132,413
ZELENKA, PEGGY Plasma Membrane Composition and Biosynthesis in Chick Lens Fibers and Epithelia	Z01 EY00177-06 LVR	1	19,389	86,686	106,075
ZIGLER, J SAMUEL Structure and Composition of Lens Crystallins with Respect to Cataract Development	Z01 EY00105-02 LVR	3	37,063	67,249	74,126
Total Intramural Research Projects in this Program Receiving FY 1981 Funds: 5					
Total FY 1981 Dollars Supporting Intramural Research Projects in this Program:			**222,270**	**376,970**	**569,054**

IV. GLAUCOMA

SUBPROGRAMS:

Primary Open-Angle Glaucoma

1. Etiology, Epidemiology, Management, and Therapy
2. Aqueous Humor Dynamics: Inflow
3. Aqueous Humor Dynamics: Outflow
4. The Optic Nerve

Other Glaucomas

5. Angle-Closure Glaucoma
6. Developmental, Congenital, and Infantile Glaucomas
7. Secondary Glaucomas

Glaucoma
Research Grants Active in FY 1981, Alphabetical Listing

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
ABDEL-LATIF, ATA A Metabolism and Function of Glycerolipids in the Iris Medical College of Georgia/Cell and Molecular Biology Augusta, Georgia	3 R01 EY02181-03S1	09/30/78-11/30/81	7	$6,238	$2,183	$8,421
ABDEL-LATIF, ATA A Protein PO_4 Turnover in the Iris of the Eye Medical College of Georgia/Cell and Molecular Biology Augusta, Georgia	1 R01 EY04171-01	09/30/81-09/29/84	2	51,545	20,979	72,524
ALVARADO, JORGE A Pathogenesis of Primary Open-Angle/Congenital Glaucoma University of California, San Francisco/Ophthalmology San Francisco, California	2 R01 EY02068-04A1	08/01/77-11/30/83	3	94,007	28,644	122,651
ANDERSON, DOUGLAS R Experimental Pathology of the Optic Nerve University of Miami/Ophthalmology Miami, Florida	5 R01 EY00031-11	11/01/77-11/30/82	4	113,812	59,182	172,994
ANDERSON, PETER J In Vitro Biochemistry of Trabecular Meshwork Massachusetts Eye and Ear Infirmary/Howe Laboratory of Ophthalmology Boston, Massachusetts	1 R01 EY03921-01	09/01/81-08/31/86	3	73,383	25,169	98,552
BÁRÁNY, ERNST H Comparative Studies of Glaucoma University of Uppsala/Medical Pharmacology Uppsala, Sweden	5 R01 EY00231-17	04/01/77-03/31/83	3	99,261	0	99,261
BARTELS, STEPHEN P Cyclic AMP in Regulation of Aqueous Humor Dynamics Eye Research Institute of Retina Foundation Boston, Massachusetts	1 R23 EY03794-01	02/01/81-01/31/84	2	32,457	20,675	53,132
BAXTER, JOHN D Hormone Responsiveness in Glaucoma University of California, San Francisco/Medicine San Francisco, California	5 R01 EY01785-06	05/01/79-04/30/82	3	62,840	19,480	82,320
BECKER, BERNARD Transport Processes and the Eye Washington University/Ophthalmology St. Louis, Missouri	5 R01 EY00004-27	02/01/75-01/31/85	2	109,623	62,737	172,360
BENSINGER, RICHARD E Superoxide Dismutase: Transport, Aging, and Degeneration University of Washington/Ophthalmology Seattle, Washington	3 R01 EY02726-03S1	09/01/78-12/31/81	7	7,412	2,520	9,932
BILL, ANDERS A Nutrition of the Eye University of Uppsala/Physiology Uppsala, Sweden	5 R01 EY00475-15	06/30/76-07/31/82	2	75,300	0	75,300
BITO, LASZLO Z Ocular Fluid Composition and Ocular Tissue Physiology Columbia University/Ophthalmology New York, New York	2 R01 EY00333-15	03/01/76-11/30/85	2	129,969	69,084	199,053

Glaucoma
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
BITO, LASZLO Z The Control of Tissue Sensitivity to Autonomic Agents Columbia University/Ophthalmology New York, New York	5 R01 EY00402–14	12/01/78–30/11/81	3	84,172	44,913	129,085
BRUBAKER, RICHARD F Pathology of the Blood-Aqueous Barrier Mayo Foundation/Ophthalmology Rochester, Minnesota	5 R01 EY00634–11	03/01/76–11/30/84	2	110,031	36,165	146,196
CAMPBELL, DAVID G Pigmentary Glaucoma Therapy: Thymoxamine, Macrophages Emory University/Ophthalmology Atlanta, Georgia	5 R01 EY03230–03	09/30/79–09/29/82	7	63,148	33,810	96,958
CHIOU, GEORGE C New Method for Studying Ocular Aqueous Humor Dynamics Texas Agriculture and Mechanical University, College Station/Medical Pharmacology and Toxicology College Station, Texas	1 R01 EY03702–01	09/01/81–08/31/85	3	58,098	19,172	77,270
CLOUD, GARY L In Vivo Ocular Tonometry Using Laser Doppler Velocimetry Michigan State University/Metallurgy, Mechanics, and Materials Science East Lansing, Michigan	5 R01 EY03293–02	09/01/80–08/31/82	1	28,935	12,715	41,650
COHAN, BRUCE E The Optic Disc: Quantitation of Topography University of Michigan, Ann Arbor/Ophthalmology Ann Arbor, Michigan	5 R01 EY02513–02	09/01/78–01/31/81	4	0	0	0
COPELAND, DONALD E Secretion of Aqueous, Vitreous Humor in Fish Eye Marine Biological Laboratory Woods Hole, Massachusetts	5 R01 EY02647–03	08/01/78–07/31/82	2	0	0	0
DRUM, BRUCE A Psychophysics of Glaucoma and Ocular Hypertension George Washington University/Ophthalmology Washington, D.C.	1 R01 EY03710–01	07/01/81–06/30/84	4	50,114	25,057	75,171
DUEKER, DAVID K Pathogenesis of Iris Neovascularization Massachusetts Eye and Ear Infirmary/Howe Laboratory Boston, Massachusetts	5 R01 EY01750–05	04/01/79–03/31/82	7	40,116	15,019	55,135
EPSTEIN, DAVID L Metabolism of the Trabecular Meshwork Massachusetts Eye and Ear Infirmary/Howe Laboratory of Ophthalmology Boston, Massachusetts	5 R01 EY01894–05	04/01/77–03/31/83	3	111,970	51,416	163,386
ERNEST, J TERRY Pathophysiology of the Ocular Circulation University of Illinois Medical Center/Ophthalmology Chicago, Illinois	7 R01 EY04085–01	07/01/81–06/30/83	4	122,034	49,177	171,211
FLACH, ALLAN J Nerve Terminal Degeneration After Epinephrine University of California, San Francisco/Ophthalmology San Francisco, California	5 R01 EY02141–05	08/01/77–07/31/82	2	73,031	14,387	87,418

Glaucoma
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
FOX, RICHARD R Pathogenesis of Glaucoma-Like Changes in Buphthalmos Jackson Laboratory/Rabbit Genetics Bar Harbor, Maine	5 R01 EY03115-03	09/30/79–09/29/82	6	74,439	34,354	108,793
GELATT, KIRK N Pathophysiology of Inherited Glaucoma University of Florida/Special Clinical Sciences Gainesville, Florida	2 R01 EY01932-05	03/01/81–11/30/83	1	65,941	29,719	95,660
GRANT, W MORTON Pressure-Regulating Mechanisms in Glaucoma Massachusetts Eye and Ear Infirmary/Ophthalmology Boston, Massachusetts	5 R01 EY00002-29	06/30/74–11/30/82	3	78,157	37,225	115,382
GREEN, KEITH Role of Drugs on the Components of Aqueous Formation Medical College of Georgia/Ophthalmology Augusta, Georgia	2 R01 EY01329-06	05/01/76–04/30/86	2	77,786	27,572	105,358
GREEN, KEITH Ion and Water Movement in Ocular Tissues Medical College of Georgia/Ophthalmology Augusta, Georgia	2 R01 EY01413-08	05/01/76–04/30/86	2	88,638	27,927	116,565
GREGORY, DOUGLAS S Biochemistry of Ciliary Processes: Enzymes and Receptor Yale University/Ophthalmology and Visual Science New Haven, Connecticut	1 R01 EY03904-01	09/01/81–08/31/84	2	61,017	35,390	96,407
GROGAN, JAMES B Antigen Exposure Via the Anterior Chamber of the Eye University of Mississippi Medical Center/Surgery Jackson, Mississippi	5 R01 EY03146-02	07/01/80–06/30/85	7	76,499	28,614	105,113
HART, WILLIAM M, JR Automated Digital Processing of the Human Visual Field Washington University/Ophthalmology St. Louis, Missouri	5 R01 EY02044-04	04/01/78–03/31/83	4	64,078	35,056	99,134
HERSCHLER, JONATHAN Aqueous Humor and Conjunctival Fibroblasts University of Arizona/Surgery Tucson, Arizona	7 R01 EY03655-01	07/01/80–12/31/81	1	0	0	0
HOSKINS, H DUNBAR, JR Developmental Glaucoma: Long-Term Evaluation University of California, San Francisco/Ophthalmology San Francisco, California	2 R01 EY01559-06	06/01/76–06/30/86	6	22,028	6,078	28,106
JAY, WALTER M Marijuana and Glaucoma Medical College of Georgia/Ophthalmology Augusta, Georgia	5 R01 EY01590-03	05/01/75–06/30/82	2	0	0	0
JOHNSTONE, MURRAY A Factors Regulating Aqueous Outflow in Glaucoma Pacific Northwest Research Foundation/Bishop Eye Research Center Seattle, Washington	5 R01 EY01906-03	02/01/77–11/30/80	3	0	0	0

Glaucoma
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
KAMM, ROGER D Hydrodynamics of Aqueous Outflow Massachusetts Institute of Technology/Mechanical Engineering Cambridge, Massachusetts	5 R01 EY03141-03	07/01/79–06/30/82	3	56,917	25,888	82,805
KASS, MICHAEL A Pathways of Prostaglandin Synthesis and Inhibition Washington University/Ophthalmology St. Louis, Missouri	5 R01 EY01333-06	02/01/78–01/31/81	3	0	0	0
KASS, MICHAEL A Compliance With Topical (Eye Drop) Ophthalmic Therapy Washington University/Ophthalmology St. Louis, Missouri	1 R01 EY03579-01	12/01/80–11/30/85	1	79,112	43,512	122,624
KAUFMAN, PAUL L Anterior Ocular Segment Physiology and Pharmacology University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	5 R01 EY02698-03	07/01/79–06/30/82	3	58,491	25,151	83,642
KAUFMAN, PAUL L Natural History of Angle-Closure Glaucoma Suspects University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	1 R01 EY03503-01	01/01/81–12/31/83	5	18,403	4,059	22,462
KELLY, DOUGLAS E Fine Structure of Uveal Barriers to Intraocular Fluid University of Southern California/Anatomy Los Angeles, California	5 R01 EY03122-03	09/30/79–09/29/82	3	43,844	21,960	65,804
KELTNER, JOHN L Photogrammetric Quantification of the Optic Cup University of California, Davis/Ophthalmology Davis, California	5 R01 EY01841-05	09/30/76–03/31/85	4	55,185	17,107	72,292
KLEINSTEIN, ROBERT N Visual Field Defects with Blood Pressure Therapy University of Alabama, Birmingham/Optometry Birmingham, Alabama	5 R01 EY02544-02	08/01/78–07/31/82	7	0	0	0
KNEPPER, PAUL A Steroid Effects on Trabecular Meshwork Glycosaminoglycan Children's Memorial Hospital/Laboratory for Ocular-Cerebral-Spinal Investigation Chicago, Illinois	1 R01 EY04175-01	09/01/81–08/31/84	3	39,583	13,860	53,443
KOLKER, ALLAN E Assessment of Risk Factors in Ocular Hypertension Washington University/Ophthalmology St. Louis, Missouri	1 R01 EY03716-01	05/01/81–04/30/86	4	85,468	46,361	131,829
KROHN, DAVID L Transcorneal Flux Enhancement of Pilocarpine New York University/Ophthalmology New York, New York	5 R01 EY02428-03	04/01/78–09/30/81	3	0	0	0
KROHN, DAVID L Corneal Penetration of Pilocarpine Via Liposomes New York University/Ophthalmology New York, New York	5 R01 EY02872-02	09/30/78–09/29/81	1	0	0	0

Glaucoma
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
KRUPIN, THEODORE Central Nervous Effects on Aqueous Humor Dynamics Washington University/Ophthalmology St. Louis, Missouri	5 R01 EY01942-05	07/01/77- 06/30/83	2	40,616	24,836	65,452
KULKARNI, PRASAD S Prostacyclin and Thromboxane-A_2 in Ocular Tissues Columbia University/Ophthalmology New York, New York	5 R01 EY02861-03	11/01/78- 11/30/81	7	59,172	31,953	91,125
LEE, PEI-FEI Laser-Based Surgical Procedure for Treatment of Glaucoma Albany Medical College/Ophthalmology Albany, New York	5 R01 EY01047-05	11/01/78- 04/30/81	1	0	0	0
LEE, PEI-FEI Aqueous Humor of Glaucomatous Eyes Albany Medical College/Ophthalmology Albany, New York	5 R01 EY02341-03	04/01/79- 03/31/82	2	53,149	25,224	78,373
LEHRER, SHERWIN S Intraocular Muscle--Biochemical Studies Boston Biomedical Research Institute/Muscle Research Boston, Massachusetts	5 R01 EY02464-03	03/01/78- 08/31/81	2	0	0	0
LICHTER, PAUL R Carbonic Anhydrase Inhibitors in Treating Glaucoma University of Michigan, Ann Arbor/Ophthalmology Ann Arbor, Michigan	5 R01 EY02450-04	06/01/78- 05/31/83	2	28,340	19,059	47,399
LICHTER, PAUL R Carbonic Anhydrase Inhibitors in Treating Glaucoma University of Michigan, Ann Arbor/Ophthalmology Ann Arbor, Michigan	5 R01 EY03608-02	07/01/80- 06/30/85	1	118,163	78,667	196,830
LYNN, JOHN R Colorimetric Analysis of Glaucoma University of Texas Health Science Center, Dallas/ Ophthalmology Dallas, Texas	1 R01 EY02242-01	04/01/78- 03/31/81	4	0	0	0
MACRI, FRANK J Mechanisms of Aqueous Humor Formation Georgetown University/Ophthalmology Washington, D.C.	1 R01 EY03426-01	07/01/81- 06/30/84	2	121,260	34,711	155,971
MAREN, THOMAS H Glaucoma, Lens and Fluid Secretion Pharmacology University of Florida/Pharmacology and Therapeutics Gainesville, Florida	2 R01 EY02227-04	03/01/78- 02/28/86	2	135,358	57,000	192,358
MERRITT, JOHN C Cannabinoids' Effect on Intraocular and Blood Pressure University of North Carolina, Chapel Hill/Ophthalmology Chapel Hill, North Carolina	5 R01 EY03401-02	04/01/80- 03/31/82	2	28,109	18,579	46,688
MINCKLER, DONALD S Morphology of Monkey Optic Nerve Estelle Doheny Eye Foundation/Ophthalmology, Pathology Los Angeles, California	2 R01 EY02210-04	02/01/78- 01/31/84	4	77,397	45,019	122,416

Glaucoma
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
MITTAG, THOMAS W Drug Effects on Iris and Ciliary Body Adenylate Cyclase Mount Sinai School of Medicine/Ophthalmology New York, New York	2 R01 EY02619-04	08/01/78-07/31/84	2	56,540	29,161	85,701
MOSES, ROBERT A Factors Affecting Intraocular Pressure Washington University/Ophthalmology St. Louis, Missouri	5 R01 EY00256-18	12/01/76-11/30/82	3	103,835	61,475	165,310
NEUFELD, ARTHUR H Mediators that Regulate Aqueous Humor Dynamics Eye Research Institute of Retina Foundation Boston, Massachusetts	2 R01 EY02367-05	03/01/78-02/28/86	2	56,940	24,276	81,216
O'ROURKE, J Uveal Blood Flow and Metabolism University of Connecticut Health Center/Surgery Farmington, Connecticut	2 R01 EY00123-10	04/01/78-03/31/84	7	84,124	35,743	119,867
PALMBERG, PAUL F Studies in Glaucoma and Related Diseases University of Miami/Ophthalmology Miami, Florida	5 R01 EY03773-02	09/01/80-04/30/82	3	47,965	24,942	72,907
PATIL, POPAT N Iris Pigmentation, Melanins, and Ocular Drug Effects Ohio State University/Pharmacology Columbus, Ohio	5 R01 EY01308-06	06/01/78-05/31/82	3	0	0	0
PEDERSON, JONATHAN E Pathophysiologic Mechanisms in Ocular Hypotony University of Minnesota, Minneapolis-St Paul/Ophthalmology Minneapolis, Minnesota	5 R01 EY03277-03	07/01/79-06/30/82	2	67,891	25,256	93,147
PHELPS, CHARLES D Glaucomatous Optic Nerve Damage--Determining Factors University of Iowa/Ophthalmology Iowa City, Iowa	1 R01 EY03330-01A1	02/01/81-01/31/86	4	75,389	25,703	101,092
PODOS, STEVEN M In Vivo Inhibitors of Ocular Prostaglandin Synthesis Mount Sinai School of Medicine/Ophthalmology New York, New York	5 R01 EY01661-05	06/30/78-06/29/81	3	0	0	0
PODOS, STEVEN M Aqueous Humor Dynamics and Vanadate Mount Sinai School of Medicine/Ophthalmology New York, New York	1 R01 EY03651-01	07/01/81-06/30/86	2	85,564	38,279	123,843
POLANSKY, JON R Trabecular Meshwork Cell Culture University of California, San Francisco/Ophthalmology San Francisco, California	5 R01 EY02477-03	04/01/79-03/31/82	3	84,864	26,308	111,172
POLLACK, IRVIN P Experimental and Clinical Studies of Lasers in Glaucoma Johns Hopkins University/Ophthalmology Baltimore, Maryland	2 R01 EY01554-04	06/04/76-12/31/83	5	44,647	39,927	84,574

Glaucoma
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
POTTER, DAVID E Ocular Effects of Selective Beta-Adrenergic Drugs Texas Tech University/Pharmacology and Therapeutics Lubbock, Texas	5 R01 EY02156-05	04/01/77-06/30/82	3	25,273	8,582	33,855
POTTS, ALBERT M An Experimental Study of Antiglaucoma Surgery University of Louisville/Ophthalmology Louisville, Kentucky	5 R01 EY01941-03	08/01/77-01/31/81	1	0	0	0
PRENDERGAST, ROBERT A Immunopathology of Uveitis Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY03521-02	09/01/80-08/31/83	7	63,306	31,653	94,959
QUIGLEY, HARRY A The Pathogenesis of Glaucomatous Optic Nerve Damage Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY02120-05	08/01/77-07/31/85	4	100,656	50,424	151,080
RABIN, SHELDON Development of Optimal Glaucoma Visual Field Protocols Mount Sinai School of Medicine/Ophthalmology New York, New York	5 R01 EY02836-03	11/01/78-03/31/82	4	40,071	16,956	57,027
RAVIOLA, GIUSEPPINA E Functional Anatomy of the Anterior Segment of the Eye Boston University/Anatomy Boston, Massachusetts	5 R01 EY01349-07	06/01/79-05/31/84	2	90,786	48,117	138,903
RICHARDSON, THOMAS M Elements in the Trabecular Meshwork Massachusetts Eye and Ear Infirmary/Howe Laboratory of Ophthalmology Boston, Massachusetts	2 R01 EY02655-04	09/01/78-08/31/86	3	129,916	47,727	177,643
RICHARDSON, THOMAS M Clinical Studies of Exfoliation and Pigmentary Glaucoma Massachusetts Eye and Ear Infirmary/Howe Laboratory of Ophthalmology Boston, Massachusetts	1 R01 EY03875-01	09/01/81-08/31/84	7	56,016	27,118	83,134
SCHOENWALD, RONALD D A Topical Carbonic Anhydrase Inhibitor for Glaucoma University of Iowa/Pharmaceutics Iowa City, Iowa	1 R01 EY03297-01A1	06/01/81-05/31/84	2	47,310	15,812	63,122
SCHWARTZ, BERNARD Response of Ocular Pressure to Corticosteroids New England Medical Center Hospital/Ophthalmology Boston, Massachusetts	3 R01 EY00024-12S1	07/01/78-09/30/81	3	22,426	5,315	27,741
SCHWARTZ, BERNARD Changes in the Optic Disc in Patients with Glaucoma New England Medical Center Hospital/Ophthalmology Boston, Massachusetts	5 R01 EY00936-08	04/01/77-06/30/85	4	97,345	24,908	122,253
SEARS, MARVIN L Physiologic Studies of Intraocular Pressure Yale University/Ophthalmology and Visual Science New Haven, Connecticut	5 R01 EY00237-20	01/01/77-03/31/82	2	166,381	97,314	263,695

Glaucoma
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
SHAPIRO, JERROLD M Glaucoma Risk from Treatment of Systemic Hypertension Boston University/Ophthalmology Boston, Massachusetts	3 R01 EY01788-05S1	08/01/78-01/31/82	4	6,985	3,821	10,806
SOMMER, ALFRED Predictive and Diagnostic Screening Test for Glaucoma Johns Hopkins University/Ophthalmology Baltimore, Maryland	1 R01 EY03605-01A1	09/01/81-08/31/86	4	99,138	47,069	146,207
SOUTHREN, A LOUIS Cortisol Metabolism in Glaucoma New York Medical College/Medicine Valhalla, New York	5 R01 EY01313-07	08/01/79-07/31/84	3	94,717	57,777	152,494
SRINIVASAN, B DOBLI Ocular Effects of Prostaglandins Columbia University/Ophthalmology New York, New York	5 R01 EY00457-13	04/01/77-03/31/82	7	79,891	57,120	137,011
STONE, RICHARD A Anion Transport in the Iris and Ciliary Body Presbyterian--University of Pennsylvania Medical Center/ Ophthalmology Philadelphia, Pennsylvania	5 R01 EY02942-03	04/01/79-03/31/82	2	47,154	35,479	82,633
SZALAY, JEANNE Regulation of Iris Blood Vessel Reactivity in Aging Queens College/Biology New York, New York	5 R01 EY01631-03	02/01/77-01/31/81	3	0	0	0
TAKAMOTO, TAKENORI Photogrammetry of the Ocular Fundus Tufts University/Ophthalmology Boston, Massachusetts	5 R01 EY03661-02	07/15/80-06/30/85	4	83,210	48,678	131,888
TRIPATHI, RAMESH C Physiopathology of Aqueous Humour Outflow System University of Chicago/Ophthalmology Chicago, Illinois	5 R01 EY02046-03	12/01/77-11/30/81	3	0	0	0
TRIPATHI, RAMESH C Trabecular Endothelium in Tissue Culture University of Chicago/Ophthalmology Chicago, Illinois	1 R01 EY03747-01	07/01/81-06/30/83	3	73,028	43,183	116,211
TSO, MARK O Pathology of Diseases of Optic Nerve Head University of Illinois Medical Center/Ophthalmology Chicago, Illinois	5 R01 EY01904-06	05/01/79-04/30/84	4	71,061	43,738	114,799
VAN BUSKIRK, E MICHAEL The Vertebrate Eye: Studies of Aqueous Outflow University of Oregon Health Sciences Center/Ophthalmology Portland, Oregon	2 R01 EY03279-03	07/01/79-06/30/84	3	87,440	27,597	115,037
WAITZMAN, MORTON B Metabolic Systems in Aqueous Humor Dynamics Emory University/Ophthalmology Atlanta, Georgia	5 R01 EY00243-16	06/30/77-06/30/81	3	0	0	0

Glaucoma
Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
WALLER, COY W Cannabinoids in the Treatment of Glaucoma University of Mississippi/Research Institute of Pharmaceutical Sciences University, Mississippi	5 R01 EY03353-02	03/01/80-02/28/83	2	91,497	33,122	124,619
WEINREB, ROBERT N Steroid Interaction with Aqueous Inflow/Outflow Tissues University of California, San Francisco/Ophthalmology San Francisco, California	1 R23 EY03833-01	09/01/81-08/31/84	3	37,500	11,625	49,125
WILENSKY, JACOB T Natural History of Angle-Closure Glaucoma Suspects University of Illinois Medical Center/Ophthalmology Chicago, Illinois	1 R01 EY03461-01	01/01/81-12/31/83	5	29,592	18,051	47,643
WIRTSCHAFTER, JONATHAN D Anterior Chamber Fluid Acetylcholine Concentration University of Minnesota, Minneapolis-St Paul/Ophthalmology Minneapolis, Minnesota	5 R01 EY02602-03	09/01/78-08/31/82	2	0	0	0
WOODS, WENDELL D Biochemical Regulation in Ocular Tissues Emory University/Ophthalmology Atlanta, Georgia	5 R01 EY00945-07	07/01/77-11/30/80	3	0	0	0
ZALKOW, LEON H Antiglaucoma Compounds from *Cannabis sativa* Georgia Institute of Technology/School of Chemistry Atlanta, Georgia	5 R01 EY03342-02	04/01/80-03/31/85	2	53,527	29,664	83,191
ZEIMER, RAN Noninvasive Measurement of Optic Nervehead Rigidity University of Illinois Medical Center/Ophthalmology Chicago, Illinois	1 R01 EY03453-01	02/01/81-01/31/84	4	56,190	34,276	90,466
ZIMMERMAN, THOMAS J Timolol: A New Drug for the Treatment of Glaucoma Louisiana State University Medical Center, New Orleans/Ophthalmology New Orleans, Louisiana	5 R01 EY02376-03	09/30/77-04/30/84	1	55,047	15,589	70,636
Total Active Research Grants in this Program in FY 1981: 104 **Total Research Grants in this Program Receiving FY 1981 Funds: 84** **Total FY 1981 Dollars Supporting Research Grants in this Program:**				**5,817,868**	**2,619,150**	**8,437,018**

Glaucoma
Research Grants Active in FY 1981, Subprogram Listing

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
PRIMARY OPEN-ANGLE GLAUCOMA		
1. Etiology, Epidemiology, Management, and Therapy		
Cloud, Gary L	In Vivo Ocular Tonometry Using Laser Doppler Velocimetry Michigan State University/Metallurgy, Mechanics, and Materials Science	$41,650
Gelatt, Kirk N	Pathophysiology of Inherited Glaucoma University of Florida/Special Clinical Sciences	95,660
Herschler, Jonathan	Aqueous Humor and Conjunctival Fibroblasts University of Arizona/Surgery	0
Kass, Michael A	Compliance With Topical (Eye Drop) Ophthalmic Therapy Washington University/Ophthalmology	122,624
Krohn, David L	Corneal Penetration of Pilocarpine Via Liposomes New York University/Ophthalmology	0
Lee, Pei-Fei	Laser-Based Surgical Procedure for Treatment of Glaucoma Albany Medical College/Ophthalmology	0
Lichter, Paul R	Carbonic Anhydrase Inhibitors in Treating Glaucoma University of Michigan, Ann Arbor/Ophthalmology	196,830
Potts, Albert M	An Experimental Study of Antiglaucoma Surgery University of Louisville/Ophthalmology	0
Zimmerman, Thomas J	Timolol: A New Drug for the Treatment of Glaucoma Louisiana State University Medical Center, New Orleans/Ophthalmology	70,636
Total Active Research Grants in this Subprogram in FY 1981: 9 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 5** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**527,400**
2. Aqueous Humor Dynamics: Inflow		
Abdel-Latif, Ata A	Protein PO_4 Turnover in the Iris of the Eye Medical College of Georgia/Cell and Molecular Biology	72,524
Bartels, Stephen P	Cyclic AMP in Regulation of Aqueous Humor Dynamics Eye Research Institute of Retina Foundation	53,132
Becker, Bernard	Transport Processes and the Eye Washington University/Ophthalmology	172,360
Bill, Anders A	Nutrition of the Eye University of Uppsala/Physiology	75,300
Bito, Laszlo Z	Ocular Fluid Composition and Ocular Tissue Physiology Columbia University/Ophthalmology	199,053
Brubaker, Richard F	Pathology of the Blood-Aqueous Barrier Mayo Foundation/Ophthalmology	146,196
Copeland, Donald E	Secretion of Aqueous, Vitreous Humor in Fish Eye Marine Biological Laboratory	0
Flach, Allan J	Nerve Terminal Degeneration After Epinephrine University of California, San Francisco/Ophthalmology	87,418
Green, Keith	Role of Drugs on the Components of Aqueous Formation Medical College of Georgia/Ophthalmology	105,358
Green, Keith	Ion and Water Movement in Ocular Tissues Medical College of Georgia/Ophthalmology	116,565
Gregory, Douglas S	Biochemistry of Ciliary Processes: Enzymes and Receptor Yale University/Ophthalmology and Visual Science	96,407

Glaucoma
Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
JAY, WALTER M	Marijuana and Glaucoma Medical College of Georgia/Ophthalmology	0
KRUPIN, THEODORE	Central Nervous Effects on Aqueous Humor Dynamics Washington University/Ophthalmology	65,452
LEE, PEI-FEI	Aqueous Humor of Glaucomatous Eyes Albany Medical College/Ophthalmology	78,373
LEHRER, SHERWIN S	Intraocular Muscle--Biochemical Studies Boston Biomedical Research Institute/Muscle Research	0
LICHTER, PAUL R	Carbonic Anhydrase Inhibitors in Treating Glaucoma University of Michigan, Ann Arbor/Ophthalmology	47,399
MACRI, FRANK J	Mechanisms of Aqueous Humor Formation Georgetown University/Ophthalmology	155,971
MAREN, THOMAS H	Glaucoma, Lens and Fluid Secretion Pharmacology University of Florida/Pharmacology and Therapeutics	192,358
MERRITT, JOHN C	Cannabinoids' Effect on Intraocular and Blood Pressure University of North Carolina, Chapel Hill/Ophthalmology	46,688
MITTAG, THOMAS W	Drug Effects on Iris and Ciliary Body Adenylate Cyclase Mount Sinai School of Medicine/Ophthalmology	85,701
NEUFELD, ARTHUR H	Mediators that Regulate Aqueous Humor Dynamics Eye Research Institute of Retina Foundation	81,216
PEDERSON, JONATHAN E	Pathophysiologic Mechanisms in Ocular Hypotony University of Minnesota, Minneapolis-St Paul/Ophthalmology	93,147
PODOS, STEVEN M	Aqueous Humor Dynamics and Vanadate Mount Sinai School of Medicine/Ophthalmology	123,843
RAVIOLA, GIUSEPPINA E	Functional Anatomy of the Anterior Segment of the Eye Boston University/Anatomy	138,903
SCHOENWALD, RONALD D	A Topical Carbonic Anhydrase Inhibitor for Glaucoma University of Iowa/Pharmaceutics	63,122
SEARS, MARVIN L	Physiologic Studies of Intraocular Pressure Yale University/Ophthalmology and Visual Science	263,695
STONE, RICHARD A	Anion Transport in the Iris and Ciliary Body Presbyterian--University of Pennsylvania Medical Center/Ophthalmology	82,633
WALLER, COY W	Cannabinoids in the Treatment of Glaucoma University of Mississippi/Research Institute of Pharmaceutical Sciences	124,619
WIRTSCHAFTER, JONATHAN D	Anterior Chamber Fluid Acetylcholine Concentration University of Minnesota, Minneapolis-St Paul/Ophthalmology	0
ZALKOW, LEON H	Antiglaucoma Compounds from *Cannabis sativa* Georgia Institute of Technology/School of Chemistry	83,191

Total Active Research Grants in this Subprogram in FY 1981: 30
Total Research Grants in this Subprogram Receiving FY 1981 Funds: 26
Total FY 1981 Dollars Supporting Research Grants in this Subprogram: 2,850,624

3. Aqueous Humor Dynamics: Outflow

ALVARADO, JORGE A	Pathogenesis of Primary Open-Angle/Congenital Glaucoma University of California, San Francisco/Ophthalmology	122,651
ANDERSON, PETER J	In Vitro Biochemistry of Trabecular Meshwork Massachusetts Eye and Ear Infirmary/Howe Laboratory of Ophthalmology	98,552

Glaucoma
Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Bárány, Ernst H	Comparative Studies of Glaucoma University of Uppsala/Medical Pharmacology	99,261
Baxter, John D	Hormone Responsiveness in Glaucoma University of California, San Francisco/Medicine	82,320
Bito, Laszlo Z	The Control of Tissue Sensitivity to Autonomic Agents Columbia University/Ophthalmology	129,085
Chiou, George C	New Method for Studying Ocular Aqueous Humor Dynamics Texas Agriculture and Mechanical University, College Station/Medical Pharmacology and Toxicolog	77,270
Epstein, David L	Metabolism of the Trabecular Meshwork Massachusetts Eye and Ear Infirmary/Howe Laboratory of Ophthalmology	163,386
Grant, W Morton	Pressure-Regulating Mechanisms in Glaucoma Massachusetts Eye and Ear Infirmary/Ophthalmology	115,382
Johnstone, Murray A	Factors Regulating Aqueous Outflow in Glaucoma Pacific Northwest Research Foundation/Bishop Eye Research Center	0
Kamm, Roger D	Hydrodynamics of Aqueous Outflow Massachusetts Institute of Technology/Mechanical Engineering	82,805
Kass, Michael A	Pathways of Prostaglandin Synthesis and Inhibition Washington University/Ophthalmology	0
Kaufman, Paul L	Anterior Ocular Segment Physiology and Pharmacology University of Wisconsin, Madison/Ophthalmology	83,642
Kelly, Douglas E	Fine Structure of Uveal Barriers to Intraocular Fluid University of Southern California/Anatomy	65,804
Knepper, Paul A	Steroid Effects on Trabecular Meshwork Glycosaminoglycan Children's Memorial Hospital/Laboratory for Ocular-Cerebral-Spinal Investigation	53,443
Krohn, David L	Transcorneal Flux Enhancement of Pilocarpine New York University/Ophthalmology	0
Moses, Robert A	Factors Affecting Intraocular Pressure Washington University/Ophthalmology	165,310
Palmberg, Paul F	Studies in Glaucoma and Related Diseases University of Miami/Ophthalmology	72,907
Patil, Popat N	Iris Pigmentation, Melanins, and Ocular Drug Effects Ohio State University/Pharmacology	0
Podos, Steven M	In Vivo Inhibitors of Ocular Prostaglandin Synthesis Mount Sinai School of Medicine/Ophthalmology	0
Polansky, Jon R	Trabecular Meshwork Cell Culture University of California, San Francisco/Ophthalmology	111,172
Potter, David E	Ocular Effects of Selective Beta-Adrenergic Drugs Texas Tech University/Pharmacology and Therapeutics	33,855
Richardson, Thomas M	Elements in the Trabecular Meshwork Massachusetts Eye and Ear Infirmary/Howe Laboratory of Ophthalmology	177,643
Schwartz, Bernard	Response of Ocular Pressure to Corticosteroids New England Medical Center Hospital/Ophthalmology	27,741
Southren, A Louis	Cortisol Metabolism in Glaucoma New York Medical College/Medicine	152,494
Szalay, Jeanne	Regulation of Iris Blood Vessel Reactivity in Aging Queens College/Biology	0

Glaucoma
Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
TRIPATHI, RAMESH C	Physiopathology of Aqueous Humour Outflow System University of Chicago/Ophthalmology	0
TRIPATHI, RAMESH C	Trabecular Endothelium in Tissue Culture University of Chicago/Ophthalmology	116,211
VAN BUSKIRK, E MICHAEL	The Vertebrate Eye: Studies of Aqueous Outflow University of Oregon Health Sciences Center/Ophthalmology	115,037
WAITZMAN, MORTON B	Metabolic Systems in Aqueous Humor Dynamics Emory University/Ophthalmology	0
WEINREB, ROBERT N	Steroid Interaction with Aqueous Inflow/Outflow Tissues University of California, San Francisco/Ophthalmology	49,125
WOODS, WENDELL D	Biochemical Regulation in Ocular Tissues Emory University/Ophthalmology	0
Total Active Research Grants in this Subprogram in FY 1981: 31 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 22** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**2,195,096**

4. The Optic Nerve

ANDERSON, DOUGLAS R	Experimental Pathology of the Optic Nerve University of Miami/Ophthalmology	172,994
COHAN, BRUCE E	The Optic Disc: Quantitation of Topography University of Michigan, Ann Arbor/Ophthalmology	0
DRUM, BRUCE A	Psychophysics of Glaucoma and Ocular Hypertension George Washington University/Ophthalmology	75,171
ERNEST, J TERRY	Pathophysiology of the Ocular Circulation University of Illinois Medical Center/Ophthalmology	171,211
HART, WILLIAM M, JR	Automated Digital Processing of the Human Visual Field Washington University/Ophthalmology	99,134
KELTNER, JOHN L	Photogrammetric Quantification of the Optic Cup University of California, Davis/Ophthalmology	72,292
KOLKER, ALLAN E	Assessment of Risk Factors in Ocular Hypertension Washington University/Ophthalmology	131,829
LYNN, JOHN R	Colorimetric Analysis of Glaucoma University of Texas Health Science Center, Dallas/ Ophthalmology	0
MINCKLER, DONALD S	Morphology of Monkey Optic Nerve Estelle Doheny Eye Foundation/Ophthalmology, Pathology	122,416
PHELPS, CHARLES D	Glaucomatous Optic Nerve Damage--Determining Factors University of Iowa/Ophthalmology	101,092
QUIGLEY, HARRY A	The Pathogenesis of Glaucomatous Optic Nerve Damage Johns Hopkins University/Ophthalmology	151,080
RABIN, SHELDON	Development of Optimal Glaucoma Visual Field Protocols Mount Sinai School of Medicine/Ophthalmology	57,027
SCHWARTZ, BERNARD	Changes in the Optic Disc in Patients with Glaucoma New England Medical Center Hospital/Ophthalmology	122,253
SHAPIRO, JERROLD M	Glaucoma Risk from Treatment of Systemic Hypertension Boston University/Ophthalmology	10,806
SOMMER, ALFRED	Predictive and Diagnostic Screening Test for Glaucoma Johns Hopkins University/Ophthalmology	146,207

Glaucoma
Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
TAKAMOTO, TAKENORI	Photogrammetry of the Ocular Fundus Tufts University/Ophthalmology	131,888
TSO, MARK O	Pathology of Diseases of Optic Nerve Head University of Illinois Medical Center/Ophthalmology	114,799
ZEIMER, RAN	Noninvasive Measurement of Optic Nervehead Rigidity University of Illinois Medical Center/Ophthalmology	90,466
Total Active Research Grants in this Subprogram in FY 1981: 18 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 16** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**1,770,665**

OTHER GLAUCOMAS

5. Angle-Closure Glaucoma

KAUFMAN, PAUL L	Natural History of Angle-Closure Glaucoma Suspects University of Wisconsin, Madison/Ophthalmology	22,462
POLLACK, IRVIN P	Experimental and Clinical Studies of Lasers in Glaucoma Johns Hopkins University/Ophthalmology	84,574
WILENSKY, JACOB T	Natural History of Angle-Closure Glaucoma Suspects University of Illinois Medical Center/Ophthalmology	47,643
Total Active Research Grants in this Subprogram in FY 1981: 3 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 3** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**154,679**

6. Developmental, Congenital, and Infantile Glaucomas

FOX, RICHARD R	Pathogenesis of Glaucoma-Like Changes in Buphthalmos Jackson Laboratory/Rabbit Genetics	108,793
HOSKINS, H DUNBAR, JR	Developmental Glaucoma: Long-Term Evaluation University of California, San Francisco/Ophthalmology	28,106
Total Active Research Grants in this Subprogram in FY 1981: 2 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 2** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**136,899**

7. Secondary Glaucomas

ABDEL-LATIF, ATA A	Metabolism and Function of Glycerolipids in the Iris Medical College of Georgia/Cell and Molecular Biology	8,421
BENSINGER, RICHARD E	Superoxide Dismutase: Transport, Aging, and Degeneration University of Washington/Ophthalmology	9,932
CAMPBELL, DAVID G	Pigmentary Glaucoma Therapy: Thymoxamine, Macrophages Emory University/Ophthalmology	96,958
DUEKER, DAVID K	Pathogenesis of Iris Neovascularization Massachusetts Eye and Ear Infirmary/Howe Laboratory	55,135
GROGAN, JAMES B	Antigen Exposure Via the Anterior Chamber of the Eye University of Mississippi Medical Center/Surgery	105,113
KLEINSTEIN, ROBERT N	Visual Field Defects with Blood Pressure Therapy University of Alabama, Birmingham/Optometry	0
KULKARNI, PRASAD S	Prostacyclin and Thromboxane-A_2 in Ocular Tissues Columbia University/Ophthalmology	91,125

Glaucoma
Research Grants Active in FY 1981, Subprogram Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
O'Rourke, J	Uveal Blood Flow and Metabolism University of Connecticut Health Center/Surgery	119,867
Prendergast, Robert A	Immunopathology of Uveitis Johns Hopkins University/Ophthalmology	94,959
Richardson, Thomas M	Clinical Studies of Exfoliation and Pigmentary Glaucoma Massachusetts Eye and Ear Infirmary/Howe Laboratory of Ophthalmology	83,134
Srinivasan, B Dobli	Ocular Effects of Prostaglandins Columbia University/Ophthalmology	137,011
Total Active Research Grants in this Subprogram in FY 1981: 11 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 10** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**801,655**
Total Active Research Grants in this Program in FY 1981: 104 **Total Research Grants in this Program Receiving FY 1981 Funds: 84** **Total FY 1981 Dollars Supporting Research Grants in this Program:**		**8,437,018**

Glaucoma
Core Grants
Active in 1981

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
HELD, RICHARD M Central Visual Processes Massachusetts Institute of Technology/Psychology Cambridge, Massachusetts	5 P30 EY02621-04	08/01/78- 07/31/83	$106,683	$55,714	$162,397
HICKEY, TERRY L Vision Research Center (Core) University of Alabama, Birmingham/Physiological Optics Birmingham, Alabama	5 P30 EY03039-03	08/01/79- 07/31/84	114,082	41,275	155,357
KRAMER, STEVEN G Vision Research Center (Core Facilities) University of California, San Francisco/Ophthalmology San Francisco, California	5 P30 EY02162-04	12/01/77- 11/30/82	161,870	50,180	212,050
MAKOUS, WALTER L Visual Science Research Center Support University of Rochester/Center for Visual Science Rochester, New York	5 P30 EY01319-08	02/01/77- 01/31/82	106,230	67,168	173,398
MOSES, ROBERT A Center for Vision Research Washington University/Ophthalmology St. Louis, Missouri	5 P30 EY02687-03	12/01/78- 11/30/83	1,000	24,012	25,012
SCHEPENS, CHARLES L Eye Research Core Services Support Eye Research Institute of Retina Foundation Boston, Massachusetts	5 P30 EY01784-05	06/04/76- 05/31/81	0	0	0
Total Active Core Grants in this Program in FY 1981: 6 **Total Core Grants in this Program Receiving FY 1981 Funds: 5** **Total FY 1981 Dollars Supporting Core Grants in this Program:**			**489,865**	**238,349**	**728,214**

Glaucoma
Specialized Clinical Research Center Grants
Active in FY 1981

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
BECKER, BERNARD Glaucoma Clinical Research Center Washington University/Ophthalmology St. Louis, Missouri	5 P50 EY00336-12S2	06/01/74- 05/31/81	1	$0	$0	$0
GRANT, W MORTON Glaucoma Clinical Research Center Massachusetts Eye and Ear Infirmary/Ophthalmology Boston, Massachusetts	3 P50 EY02518-03S1	09/01/78- 08/31/82	1	109,743	49,662	159,405
Total Active Specialized Clinical Research Center Grants in this Program in FY 1981: 2						
Total Specialized Clinical Research Center Grants in this Program Receiving FY 1981 Funds: 1						
Total FY 1981 Dollars Supporting Specialized Clinical Research Center Grants in this Program:				**109,743**	**49,662**	**159,405**

Glaucoma
Institutional National Research Service Awards
Active in FY 1981

Program Director Project Title Institution/Department City, State	Grant Number	Project Period	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
ANDERSON, DOUGLAS R Ophthalmic Speciality Research Training University of Miami/Ophthalmology Miami, Florida	2 T32 EY07021-06	07/01/75- 06/30/86	$62,929	$5,035	$67,964
BALAZS, ENDRE A Ophthalmology Columbia University/Ophthalmology New York, New York	5 T32 EY07002-07	07/01/75- 07/31/85	77,672	5,945	83,617
EGBERT, PETER R Training in Research in the Basic Sciences Stanford University/Surgery Stanford, California	5 T32 EY07053-04	08/01/78- 07/31/83	26,362	2,072	28,434
GELATT, KIRK N Comparative Ophthalmology and Visual Science University of Florida/Special Clinical Sciences Gainesville, Florida	5 T32 EY07060-03	01/01/79- 12/31/83	65,112	4,814	69,926
NOELL, WERNER K Eye Physiology and Biochemistry State University of New York, Buffalo/Physiology Buffalo, New York	5 T32 EY07019-05	07/01/75- 12/31/80	0	0	0
Total Active Institutional NRSAs in this Program in FY 1981: 5 **Total Institutional NRSAs in this Program Receiving FY 1981 Funds: 4** **Total FY 1981 Dollars Supporting Institutional NRSAs in this Program:**			**232,075**	**17,866**	**249,941**

Glaucoma
Individual National Research Service Awards
Active in FY 1981

Name of Fellow, Degree Sponsor Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Stipends Awarded	FY 1981 Other Allowances Awarded	FY 1981 Total Awarded
BARRIE, KATHLEEN P, DVM Gelatt, Kirk N Uveoscleral Outflow in Normal and Glaucomatous Animals University of Florida/Special Clinical Sciences Gainesville, Florida	5 F32 EY05392-02	07/01/80- 11/30/82	3	$0	$0	$0
FLOYD, BESSIE B, MD Minckler, Donald S Anatomy and Physiology of Disc Swelling in Monkey Eyes Estelle Doheny Eye Foundation/Ophthalmic Pathology Los Angeles, California	5 F32 EY05396-02	11/01/80- 10/31/81	4	17,892	5,000	22,892
FREDDO, THOMAS F, PhD Raviola, Giuseppina E Functional Morphology of Iris Blood Vessels Boston University/Anatomy Boston, Massachusetts	5 F32 EY05283-02	10/01/80- 09/30/81	1	0	0	0
LOYD, ROBERT M, PhD Connelly, Thomas G Cell Cycle Controls in the Regenerating Lens in Vitro University of Michigan, Ann Arbor/Anatomy Ann Arbor, Michigan	5 F32 EY05302-02	08/01/80- 07/31/81	1	0	0	0
PAKLNIS, VYTAUTAS A, MD Landers, Maurice B Development of Animal Model of Iris Neovascularization Duke University/Ophthalmology Durham, North Carolina	1 F32 EY05592-01	09/01/81- 10/27/83	7	17,040	5,000	22,040
ROWLAND, FREDERICK N, JR, PhD O'Rourke, James Fibrin and Inflammation in Uveitis and Glaucoma University of Connecticut Health Center/Pathology Farmington, Connecticut	1 F32 EY05586-01	09/01/81- 12/27/84	7	13,380	5,000	18,380
ROWLAND, JON M, PhD Potter, David E Ocular Effects of Selective Adrenergic Drugs Texas Tech University/Pharmacology and Therapeutics Lubbock, Texas	5 F32 EY05403-02	07/01/80- 06/30/81	3	0	0	0
Total Active Individual NRSAs in this Program in FY 1981: 7 **Total Individual NRSAs in this Program Receiving FY 1981 Funds: 3** **Total FY 1981 Dollars Supporting Individual NRSAs in this Program:**				**48,312**	**15,000**	**63,312**

Glaucoma
Research Career Development Awards
Active in FY 1981

Awardee Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
KAUFMAN, PAUL L Anterior Ocular Segment Physiology and Pharmacology University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	5 K04 EY00137-03	07/01/79- 06/30/84	3	$36,000	$2,880	$38,880
KRUPIN, THEODORE Central Nervous System Influence on Ocular Dynamics Washington University/Ophthalmology St. Louis, Missouri	5 K04 EY00082-05	07/01/77- 06/30/82	2	32,256	2,580	34,836
NEUFELD, ARTHUR H Regulation of Aqueous Humor Dynamics Eye Research Institute of Retina Foundation Boston, Massachusetts	5 K04 EY00114-05	07/01/77- 05/31/81	3	0	0	0
PALMBERG, PAUL F Studies in Glaucoma and Related Diseases University of Miami/Ophthalmology Miami, Florida	5 K04 EY00225-03	07/01/80- 06/30/84	3	35,805	2,864	38,669
VAN BUSKIRK, E MICHAEL The Vertebrate Eye: Studies in Aqueous Outflow Oregon Health Sciences University/Ophthalmology Portland, Oregon	5 K04 EY00183-05	07/01/79- 06/30/81	3	0	0	0
ZIMMERMAN, THOMAS J Treatment of Glaucoma Louisiana State University Medical Center, New Orleans/ Ophthalmology New Orleans, Louisiana	5 K04 EY00115-03	08/20/79- 08/19/84	1	33,600	2,688	36,288
Total Active Research Career Development Awards in this Program in FY 1981: 6						
Total Research Career Development Awards in this Program Receiving FY 1981 Funds: 4						
Total FY 1981 Dollars Supporting Research Career Development Awards in this Program:				**137,661**	**11,012**	**148,673**

Glaucoma
Academic Investigator Awards
Active in FY 1981

Awardee Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded
LIU, SAMMY H Immunology of Uveitis Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 K07 EY00155-03	07/01/79- 06/30/82	7	$34,900
RITCH, ROBERT H $(Na^+ + K^+)$-ATPase in Aqueous Humor Dynamics Mount Sinai School of Medicine/Ophthalmology New York, New York	5 K07 EY00133-03	08/01/78- 07/31/81	3	0
SCHAEFFER, HELENE E Transcorneal Pilocarpine Flux Enhancement Via Liposomes New York University/Ophthalmology New York, New York	5 K07 EY00138-03	09/30/78- 09/29/81	1	0

Total Active Academic Investigator Awards in this Program in FY 1981: 3
Total Academic Investigator Awards in this Program Receiving FY 1981 Funds: 1
Total FY 1981 Dollars Supporting Academic Investigator Awards in this Program: 34,900

Glaucoma
NEI Intramural Research Projects
Active in FY 1981

Principal Investigator Project Title	Project Number	Sub-program	FY 1981 Professional Salaries	FY 1981 Other Direct Costs	FY 1981 Total Direct Costs
BALLINTINE, ELMER J Ocular Hypertension Study	Z01 EY00150-08 CB	1	$6,983	$26,603	$33,586
GAASTERLAND, DOUGLAS E Studies of Parameters of Intraocular Pressure	Z01 EY00030-10 CB	3	6,300	19,392	25,692
GAASTERLAND, DOUGLAS E Laboratory Studies of Aqueous Humor Dynamics	Z01 EY00046-05 CB	2	4,297	10,239	14,536
GAASTERLAND, DOUGLAS E Aqueous Humor Flow Measurement By Fluorophotometry	Z01 EY00050-05 CB	3	4,297	10,239	14,536
GAASTERLAND, DOUGLAS E Treatment of Neovascular Glaucoma	Z01 EY00077-04 CB	7	4,848	10,239	15,087
GAASTERLAND, DOUGLAS E Experimental Glaucoma in The Rhesus Monkey	Z01 EY00154-08 CB	1	4,297	10,239	14,536
GAASTERLAND, DOUGLAS E Laser Surgery for Glaucoma	Z01 EY00168-06 CB	3	15,321	11,910	27,231
KAISER-KUPFER, MURIEL I Pigment Dispersion With and Without Glaucoma	Z01 EY00011-07 CB	7	7,901	23,709	31,610
KAISER-KUPFER, MURIEL I Progressive Essential Iris Atrophy	Z01 EY00062-05 CB	6	7,901	26,760	34,661
KUPFER, CARL Interior Chamber Anomalies Associated with Glaucoma or Ocular Hypertension	Z01 EY00084-03 CB	6	5,696	23,709	29,405
RODRIGUES, MERLYN M Clinicopathologic Studies of Human Ocular Diseases	Z01 EY00096-03 CB	1	16,537	31,760	48,297
Total Intramural Research Projects in this Program Receiving FY 1981 Funds: 11					
Total FY 1981 Dollars Supporting Intramural Research Projects in this Program:			**84,378**	**204,799**	**289,177**

II. STRABISMUS, AMBLYOPIA, AND VISUAL PROCESSING

SUBPROGRAMS/AREAS:

Visual Processing and Amblyopia

1. Normal and Abnormal Development
   - A. Molecular
   - B. Cell and Systems
   - C. Behavior
2. Structure and Function
   - A. Molecular
   - B. Cell and Systems
   - C. Behavior
3. Disorders
   - A. Amblyopia
   - B. Sensory Neuro-Ophthalmic Disorders

Ocular Motility and Strabismus

4. Normal and Abnormal Development
5. Structure and Function
   - A. Conjugate Eye Movements
   - B. Vergence and Accommodation
   - C. Muscle Structure and Physiology
6. Disorders
   - A. Strabismus
   - B. Motor Neuro-Ophthalmic Disorders

Optics and Refractive Errors, Including Myopia

7. Optics and Refractive Errors, Including Myopia

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Alphabetical Listing

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
ADLER, RUBEN Visual Neurons: Development and Regeneration in Vitro University of California, San Diego/Biology La Jolla, California	5 R01 EY02854-03	04/01/79- 03/31/82	1(A)	$69,284	$21,478	$90,762
AGAMANOLIS, DIMITRIS P Vitamin B_{12} Deficiency in Rhesus Monkeys Children's Hospital Medical Center of Akron/Neuropathology Akron, Ohio	5 R01 EY02899-03	07/01/78- 10/31/81	3(B)	0	0	0
ALLMAN, JOHN M Functional Organization of Visual Cortex California Institute of Technology Pasadena, California	1 R01 EY03851-01	08/01/81- 07/31/86	2(B)	73,461	33,440	106,901
AREND, LAWRENCE E Analysis of Frequency Channels in Vision Brandeis University/Psychology Waltham, Massachusetts	5 R01 EY01797-06	06/30/79- 06/29/82	2(C)	25,983	17,896	43,879
ARMINGTON, JOHN C Stimulus Alternation and Visual Potentials Northeastern University/Psychology Boston, Massachusetts	5 R01 EY00589-14	05/01/78- 04/30/83	2(C)	50,326	25,221	75,547
BAHILL, A TERRY Clinical Recording of Saccades Carnegie-Mellon University/Electrical Engineering Pittsburgh, Pennsylvania	5 R23 EY02382-03	05/01/78- 04/30/81	6(B)	0	0	0
BAIZER, JOAN S Organization of Visual Function in Prestriate Cortex State University of New York, Buffalo/Physiology Buffalo, New York	3 R01 EY02230-03S1	01/01/78- 03/31/82	2(B)	1,188	0	1,188
BAKER, FRANK H Thalamic Mechanisms in Visual Processing Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY01494-03	06/30/76- 12/31/80	2(B)	0	0	0
BAKER, ROBERT G Eye Movement: Physiological Organization New York University/Physiology and Biophysics New York, New York	2 R01 EY02007-06	09/30/76- 09/29/86	5(A)	91,942	23,399	115,341
BARLOW, ROBERT B, JR Functional Organization of the Visual System Syracuse University/Institute for Sensory Research Syracuse, New York	5 R01 EY00667-09	12/01/77- 11/30/82	2(B)	102,338	64,216	166,554
BARMACK, NEAL H Central and Peripheral Control of Eye Position Good Samaritan Hospital and Medical Center/Ophthalmology Portland, Oregon	5 R01 EY00848-10	01/01/78- 07/31/81	5(A)	75,969	34,876	110,845
BARMACK, NEAL H Central and Peripheral Control of Eye Position University of Connecticut, Storrs/Biological Sciences Storrs, Connecticut	7 R01 EY04167-01	08/01/81- 12/31/82	5(A)	25,000	11,890	36,890

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
BARNSTABLE, COLIN J Immunological Analysis of the Mammalian Visual System Harvard University/Neurobiology Boston, Massachusetts	1 R01 EY03735-01	05/01/81-04/30/84	2(A)	55,720	57,264	112,984
BAUGHMAN, ROBERT W Neurotransmitters in the Central Visual Pathway Harvard University/Neurobiology Boston, Massachusetts	5 R01 EY03502-02	07/01/80-06/30/83	2(A)	54,813	50,595	105,408
BENDER, DAVID B Visual Functions of the Monkey Pulvinar State University of New York, Buffalo/Physiology Buffalo, New York	5 R01 EY02254-03	12/01/78-11/30/81	2(B)	37,521	16,178	53,699
BENEVENTO, LOUIS A Visual, Sensory, Motor, and Associational Systems University of Illinois Medical Center/Ophthalmology Chicago, Illinois	5 R01 EY02940-04	09/01/78-08/31/83	2(B)	39,202	22,679	61,881
BERKLEY, MARK A Neural Mechanisms in Spatial Vision Florida State University/Psychology Tallahassee, Florida	5 R01 EY00953-10	07/01/78-06/30/82	2(B)	56,676	25,523	82,199
BERMAN, NANCY E Experimental Analysis of Strabismus Medical College of Pennsylvania/Physiology and Biochemistry Philadelphia, Pennsylvania	5 R01 EY02088-03	05/01/78-04/30/81	6(A)	0	0	0
BLAKE, R RANDOLPH Spatial Vision in Normal and Visually Deprived Animals Northwestern University/Psychology Evanston, Illinois	5 R01 EY01596-06	09/01/78-08/31/82	1(C)	31,070	15,221	46,291
BLANKS, ROBERT H Eye Movement Control University of California, Irvine/Anatomy Irvine, California	5 R01 EY03018-03	09/30/78-09/29/82	5(A)	0	0	0
BODIS-WOLLNER, IVAN G Parallel Pathways in Vision Mount Sinai School of Medicine/Neurology New York, New York	5 R01 EY01708-05	02/01/77-01/31/85	2(C)	84,451	44,346	128,797
BODIS-WOLLNER, IVAN G Conference on Evoked Potentials New York Academy of Sciences/Neurology New York, New York	1 R13 EY03771-01	05/01/81-04/30/82	2(C)	5,000	0	5,000
BONDS, ALFRED B, III Spatial Adaptation of Neurons in the Striate Cortex Vanderbilt University/Electrical and Biomedical Engineering Nashville, Tennessee	5 R01 EY03778-02	09/30/80-09/29/82	2(B)	17,903	5,958	23,861
BOOTHE, RONALD G Development of Spatial Vision University of Washington/Psychology Seattle, Washington	5 R01 EY02510-04	08/01/78-07/31/83	1(C)	76,452	16,750	93,202

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
BOYNTON, ROBERT M Psychophysiological and Optical Studies of Vision University of California, San Diego/Psychology La Jolla, California	2 R01 EY01541-08	08/01/76- 07/31/86	2(C)	69,932	21,059	90,991
BREININ, GOODWIN M Fine Structure of Normal and Pathologic Ocular Muscle New York University/Ophthalmology New York, New York	5 R01 EY00309-16	05/01/75- 04/30/85	5(C)	102,956	49,516	152,472
BROOKS, BARBARA A Visual Processing During Eye Movement University of Texas Health Science Center, San Antonio/ Physiology San Antonio, Texas	5 R01 EY01497-05	06/30/76- 12/31/80	2(B)	0	0	0
BRUNSO-BECHTOI D, JUDY K Anatomical Studies of Visual System Development Vanderbilt University/Anatomy Nashville, Tennessee	1 R01 EY03881-01	08/01/81- 07/31/84	1(B)	52,422	23,194	75,616
CAREY, RUSSELL G Primate Visual System: Connectivity of Ascending Systems St. Joseph's Hospital and Medical Center/Neurobiology Phoenix, Arizona	1 R01 EY03641-01A1	09/01/81- 08/31/84	2(B)	65,392	18,493	83,885
CARLSON, STANLEY D Neuropile Reconstruction by HVEM and Other Methods University of Wisconsin, Madison/Entomology Madison, Wisconsin	5 R01 EY01686-03	06/01/76- 10/31/80	2(B)	0	0	0
CASAGRANDE, VIVIEN A Effects of Visual Deprivation in Primates Vanderbilt University/Anatomy Nashville, Tennessee	5 R01 EY01778-06	02/01/78- 06/30/84	1(B)	54,651	25,613	80,264
CHALUPA, LEO M Tectorecipient Zone of LP-Pulvinar University of California, Davis/Psychology Davis, California	5 R01 EY03491-02	09/30/80- 09/29/83	2(B)	29,503	9,146	38,649
CHIARANDINI, DANTE J Physiology and Pharmacology of Extraocular Muscles New York University/Ophthalmology New York, New York	5 R01 EY01297-08	06/01/77- 05/31/82	5(C)	81,567	37,078	118,645
CHINO, YUZO M Strabismus in Animals Illinois College of Optometry/Division of Basic Science Chicago, Illinois	1 R01 EY03588-01	12/01/80- 11/30/83	6(A)	32,000	1,750	33,750
CHOW, KAO L Neurology of Vision and Learning Stanford University/Neurology Stanford, California	2 R01 EY00691-21	04/01/76- 03/31/84	1(B)	71,586	42,612	114,198
CIUFFREDA, KENNETH J Accommodative Vergence and Accommodation in Amblyopia State College of Optometry/Basic Optometric Sciences New York, New York	1 R01 EY03541-01	12/01/80- 11/30/83	5(B)	86,160	9,348	95,508

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
COGAN, ALEXANDER 1 A Temporal Aspect of Binocular Vision Institutes of Medical Sciences San Francisco, California	5 R01 EY01558-06	05/01/79-04/30/82	2(C)	54,243	28,814	83,057
COHEN, BERNARD Visual Control of the Oculomotor System Mount Sinai School of Medicine/Neurology New York, New York	2 R01 EY02296-04	01/01/78-12/31/84	5(A)	59,381	25,460	84,841
COHEN, JOSEPH D Adaptation in Normal and Deficient Color Vision Mount Holyoke College/Psychology South Hadley, Massachusetts	5 R01 EY02025-03	09/01/78-08/31/81	2(C)	0	0	0
COHN, THEODORE E Psychophysical Analysis of Visual Sensory Deficit University of California, Berkeley/Physiological Optics Berkeley, California	5 R01 EY02830-03	04/01/79-07/31/84	3(A)	31,871	9,946	41,817
COLLIER, LINDA L Visual System Studies in Chediak-Higashi Animals University of Missouri, Columbia/Veterinary Pathology Columbia, Missouri	1 R01 EY03071-01A1	02/01/81-01/31/84	1(B)	47,043	16,700	63,743
COLLINS, CARTER C Human Applications of Basic Eye Position Mechanics Institutes of Medical Sciences San Francisco, California	1 R01 EY03915-01	08/01/81-07/31/83	6(A)	62,473	32,572	95,045
COTTER, JOHN R Efferent Projections from Accessory Optic Nuclei State University of New York, Buffalo/Anatomical Sciences Buffalo, New York	5 R23 EY02368-03	05/01/78-04/30/81	2(B)	0	0	0
COWAN, W MAXWELL Anatomical Studies of Visual and Sensory Deprivation Salk Institute for Biological Studies/Developmental Neurobiology La Jolla, California	5 R01 EY03653-02	07/01/80-11/30/83	1(B)	79,111	52,213	131,324
COX, TERRY A Dynamics of Afferent Pupillary Defects University of Nebraska Medical Center/Ophthalmology Omaha, Nebraska	1 R23 EY03863-01	09/01/81-08/31/84	3(A)	37,500	11,760	49,260
CRANE, HEWITT D Binocular Visual Processes and Instrumentation SRI International/Visual Science Program Menlo Park, California	5 R01 EY01031-08	04/01/79-03/31/82	2(C)	105,895	115,759	221,654
CRAWFORD, MORRIS L Excitability of Visual Pathways University of Texas Health Science Center, Houston/Sensory Sciences Center Houston, Texas	5 R01 EY00381-11	08/01/78-07/31/82	2(B)	0	0	0
CROSSLAND, WILLIAM J Development and Maintenance of Visual Connections Wayne State University/Anatomy Detroit, Michigan	5 R01 EY01796-06	06/01/76-06/30/82	1(B)	43,525	20,570	64,095

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Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
CYNADER, MAX S Etiology of Strabismus in Animals Dalhousie University/Psychology Halifax, Canada	5 R01 EY02248-03	05/01/78- 04/30/81	6(A)	0	0	0
DANIELS, JERRY D Binocular Vision: Interactions on Area 18 Neurons Brown University/Engineering Providence, Rhode Island	5 R01 EY02244-03	01/01/78- 02/28/81	1(B)	0	0	0
DAW, NIGEL W Neural Mechanisms of Vision Washington University/Physiology and Biophysics St. Louis, Missouri	2 R01 EY00053-12	03/01/76- 02/28/86	2(A)	92,776	37,304	130,080
DE VALOIS, RUSSELL L Electrophysiology of Color Vision University of California, Berkeley/Psychology Berkeley, California	5 R01 EY00014-14	09/01/74- 08/31/84	2(B)	74,438	22,623	97,061
DOBSON, MARGARET V Clinical Assessment of Visual Acuity University of Washington/Psychology Seattle, Washington	2 R01 EY02581-04	08/01/78- 07/31/86	3(A)	86,754	24,682	111,436
DOW, BRUCE M Foveal Vision in the Alert Rhesus Monkey State University of New York, Buffalo/Physiology Buffalo, New York	5 R01 EY02349-04	01/01/78- 12/31/82	2(B)	54,447	23,779	78,226
DRAGER, URSULA C The Visual System in Normal and Abnormal Mice Harvard University/Neurobiology Boston, Massachusetts	5 R01 EY01938-05	08/01/77- 07/31/85	1(B)	70,972	65,373	136,345
DUBIN, MARK W Receptive Field Organization in the Visual System University of Colorado, Boulder/Molecular, Cellular, and Developmental Biology Boulder, Colorado	5 R01 EY00998-08	09/01/76- 11/30/82	2(B)	48,487	20,438	68,925
DUFFY, FRANK H The Role of Inhibition in Experimental Amblyopia Children's Hospital Medical Center/Neurology Boston, Massachusetts	5 R01 EY01901-05	09/30/76- 12/31/82	3(A)	79,897	51,250	131,147
EASTER, STEPHEN S, JR Retinal Growth and Its Consequences University of Michigan, Ann Arbor/Division of Biological Sciences Ann Arbor, Michigan	5 R01 EY00168-12	05/01/78- 04/30/82	1(B)	20,067	16,337	36,404
EBENHOLTZ, SHELDON M Determinants of Perceptual Orientation University of Wisconsin, Madison/Psychology Madison, Wisconsin	5 R01 EY02264-03	06/01/78- 03/31/82	2(C)	0	0	0
EBENHOLTZ, SHELDON M Studies of Hysteresis Effects in Accommodation University of Wisconsin, Madison/Psychology Madison, Wisconsin	5 R01 EY03421-02	09/30/80- 09/29/83	5(B)	33,136	11,791	44,927

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EGGERS, HOWARD M Animal Model of Human Amblyopia Columbia University/Ophthalmology New York, New York	5 R23 EY02634-03	08/01/78- 07/31/81	3(A)	0	0	0
EMERSON, ROBERT C Image Movement: Neural Processing Mechanisms University of Rochester/Center for Visual Science Rochester, New York	5 R01 EY01440-05	09/01/74- 08/31/81	2(B)	0	0	0
ENGBRETSON, GUSTAV A Visual Information Processing by the Parietal Eye Syracuse University/Institute for Sensory Research Syracuse, New York	2 R01 EY03359-03	09/01/79- 08/31/84	2(B)	93,944	45,909	139,853
ENOCH, JAY M Clinical Application of Hyperacuity and Related Studies University of California, Berkeley/Optometry Berkeley, California	5 R01 EY03669-02	07/01/80- 06/30/83	2(C)	62,265	18,217	80,482
ENROTH-CUGELL, CHRISTINA A Retinal Ganglion Cell Responses to Time-Varying Stimuli Northwestern University/Engineering Science and Applied Math Evanston, Illinois	5 R01 EY00206-21	09/01/77- 08/31/82	2(B)	56,130	38,009	94,139
FAHRENBACH, WOLF H Structure of Neuronal Circuitry in Sensory Ganglia Medical Research Foundation of Oregon/Electron Microscopy Portland, Oregon	5 R01 EY00392-14	05/01/74- 06/30/82	2(B)	21,312	9,011	30,323
FELDON, STEVEN E Clinical Techniques Quantifying Graves' Ophthalmopathy University of Southern California/Ophthalmology Los Angeles, California	1 R01 EY03908-01	09/30/81- 09/29/84	6(B)	48,996	22,538	71,534
FENDER, DEREK H Children's Development of Reading Strategies California Institute of Technology/Jorgensen Laboratory of Information Science Pasadena, California	5 R01 EY02479-03	04/01/78- 03/31/81	5(A)	0	0	0
FENDER, DEREK H The Influence of Peripheral Vision on Visual Performance California Institute of Technology/Jorgensen Laboratory of Information Science Pasadena, California	5 R01 EY02890-03	01/01/79- 12/31/81	5(A)	63,130	30,302	93,432
FERNALD, RUSSELL D Neural Basis of Visual Pattern Recognition in Fish University of Oregon/Biology Eugene, Oregon	3 R01 EY02284-03S1	04/01/78- 05/31/82	2(B)	14,040	5,672	19,712
FIFKOVA, EVA Visual Deprivation Effect on Synapses of Visual Centers University of Colorado, Boulder/Psychology Boulder, Colorado	5 R01 EY01500-07	02/01/79- 01/31/82	1(B)	47,281	18,198	65,479
FLOM, MERTON C Sensory and Motor Mechanisms in Functional Amblyopia University of Houston Houston, Texas	5 R01 EY03694-02	08/01/80- 07/31/85	3(A)	75,211	22,563	97,774

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FLYNN, JOHN T Binocular Vision in Parents of Strabismic Subjects University of Miami/Ophthalmology Miami, Florida	1 R01 EY03580-01	02/01/81-01/31/84	6(A)	81,048	35,330	116,378
FOOTE, WARREN E Studies of Retinal Afferents to the Brain Stem Raphe Massachusetts General Hospital/Psychiatry Service Boston, Massachusetts	5 R01 EY02979-03	09/30/79-09/29/82	5(A)	62,755	23,198	85,953
FOX, ROBERT The Suppression Mechanism in Binocular Rivalry Vanderbilt University/Psychology Nashville, Tennessee	2 R01 EY00590-18	09/01/78-08/31/86	1(C)	67,210	27,722	94,932
FOX, ROBERT Stereoscopic Vision in Animals Vanderbilt University/Psychology Nashville, Tennessee	5 R01 EY00931-06	09/30/77-09/29/82	2(C)	0	0	0
FREEMAN, JOHN A Synaptic Organization of the Optic Tectum Vanderbilt University/Anatomy Nashville, Tennessee	5 R01 EY01117-09	03/01/79-02/28/82	1(A)	95,549	44,810	140,359
FREEMAN, RALPH D Visual Development and Deprivation University of California, Berkeley/Optometry Berkeley, California	5 R01 EY01175-09	08/01/76-07/31/84	1(B)	77,268	24,876	102,144
FRIEDLANDER, MICHAEL J Development of Structure/Function in the Visual System University of Alabama, Birmingham/Physiology and Biophysics Birmingham, Alabama	1 R01 EY03805-01	09/01/81-08/31/84	1(B)	65,550	21,613	87,163
FROST, DOUGLAS O Function of Ectopic Retinal Projections in Hamsters Yale University/Neuroanatomy New Haven, Connecticut	5 R01 EY03465-02	09/30/80-09/29/83	1(B)	39,298	26,596	65,894
FRUMKES, THOMAS E Rod-Cone Interaction in Vertebrate Vision Queens College/Psychology New York, New York	5 R01 EY01802-05	09/30/80-09/29/83	2(C)	53,479	33,163	86,642
FUCHS, ALBERT F Neurophysiology of the Oculomotor System University of Washington/Physiology and Biophysics Seattle, Washington	5 R01 EY00745-11	09/01/76-08/31/84	5(A)	88,020	19,966	107,986
FUCHS, ALBERT F Neuroanatomy of the Oculomotor System University of Washington/Physiology and Biophysics Seattle, Washington	5 R01 EY03212-02	09/30/79-05/31/83	5(A)	36,307	11,664	47,971
GEORGE, STEPHEN A Vision in Triploid Animals Amherst College/Biology Amherst, Massachusetts	5 R01 EY01662-05	09/01/77-06/30/81	1(B)	0	0	0

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GIOLLI, ROLAND A Projections of Medial Accessory Optic Nucleus University of California, Irvine/Anatomy Irvine, California	1 R01 EY03642-01	12/01/80–11/30/83	5(A)	51,389	14,162	65,551
GLICKSTEIN, MITCHELL Visual Input to the Cerebellum Brown University/Psychology Providence, Rhode Island	5 R01 EY03114-03	07/01/79–06/30/82	2(B)	71,000	40,470	111,470
GOLDBERG, STEPHEN J Inputs to Abducens Neurons: An Intracellular Study Virginia Commonwealth University/Anatomy Richmond, Virginia	5 R01 EY01442-06	07/01/78–03/31/82	5(A)	0	0	0
GOLDBERG, STEPHEN J Mammalian Retinal Regeneration University of Miami/Anatomy Miami, Florida	5 R01 EY02579-03	01/01/79–12/31/81	1(A)	55,360	30,951	86,311
GOLDSMITH, TIMOTHY H Avian Color Vision Yale University/Biology New Haven, Connecticut	5 R01 EY03266-03	09/30/79–09/29/82	2(B)	6,212	3,635	9,847
GRAFSTEIN, BERNICE Effects of Darkness on Developing Visual System Cornell University Medical Center/Physiology and Biophysics New York, New York	5 R01 EY02696-03	12/01/78–11/30/81	1(A)	28,352	19,696	48,048
GRANDA, ALLEN M Processing of Visual Information University of Delaware Newark, Delaware	5 R01 EY01540-12	12/01/78–05/31/84	2(B)	51,326	21,636	72,962
GRANT, PHILIP Optic Fiber Patterns: Ontogeny of Neuronal Connections University of Oregon/Biology Eugene, Oregon	5 R01 EY02642-03	12/01/78–11/30/81	1(B)	45,262	18,764	64,026
GRAYBIEL, ANN M An Analysis of Extrageniculate Visual Mechanisms Massachusetts Institute of Technology/Psychology Cambridge, Massachusetts	5 R01 EY02866-03	12/01/78–11/30/82	2(B)	69,954	38,843	108,797
GROBSTEIN, PAUL Development of Connectivity in Anuran Visual Systems University of Chicago/Pharmacological and Physiological Sciences Chicago, Illinois	5 R01 EY01658-06	04/01/79–03/31/82	1(B)	36,108	22,549	58,657
GUILLERY, RAINER W Abnormalities in Visual Pathways University of Chicago/Pharmacological and Physiological Sciences Chicago, Illinois	5 R01 EY02374-06	09/01/78–08/31/83	1(B)	89,447	47,228	136,675
HALL, RICHARD W, JR Implementation of Visual Information Processing University of Pittsburgh/Electrical Engineering Pittsburgh, Pennsylvania	5 R23 EY02457-03	08/01/78–07/31/81	2(C)	0	0	0

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HALL, WILLIAM C Structural Organization of the Superior Colliculus Duke University/Anatomy Durham, North Carolina	9 R01 EY04060-10	08/01/81- 07/31/86	5(A)	38,812	16,665	55,477
HAMASAKI, DUCO I Studies of the Visual System of Amblyopic Patients University of Miami/Ophthalmology Miami, Florida	2 R01 EY00376-12	09/01/78- 08/31/84	1(B)	99,441	62,661	162,102
HARTH, ERICH New Approaches in Vision Research Syracuse University/Physics Syracuse, New York	5 R01 EY01215-07	07/01/77- 12/31/81	2(B)	0	0	0
HARTING, JOHN K Cortical Effects of Sensory Deprivation University of Wisconsin, Madison/Anatomy Madison, Wisconsin	5 R01 EY01277-07	12/01/76- 11/30/84	1(B)	67,637	28,945	96,582
HARWERTH, RONALD S Behavioral Measures of Binocular Vision University of Houston/Basic and Optometric Sciences Houston, Texas	5 R01 EY01139-07	01/01/78- 12/31/81	3(A)	57,859	18,119	75,978
HELD, RICHARD M Vision and Visuomotor Mechanisms Massachusetts Institute of Technology/Psychology Cambridge, Massachusetts	5 R01 EY01191-08	09/01/80- 08/31/85	1(C)	71,111	44,520	115,631
HELD, RICHARD M Development of Amblyopia in Early Cataract and Strabismus Massachusetts Institute of Technology/Psychology Cambridge, Massachusetts	5 R01 EY02649-03	09/01/78- 03/31/82	3(A)	0	0	0
HELVESTON, EUGENE M Visual Function and Academic Performance Indiana University--Purdue University, Indianapolis/ Ophthalmology Indianapolis, Indiana	1 R01 EY03708-01	09/01/81- 08/31/84	6(A)	58,904	24,151	83,055
HENDRICKSON, ANITA E Primate Visual System Development and Deprivation University of Washington/Ophthalmology Seattle, Washington	5 R01 EY01208-08	01/06/77- 12/31/84	1(A)	98,261	33,409	131,670
HIBBARD, EMERSON Visual Restoration Pennsylvania State University, University Park/Biology University Park, Pennsylvania	5 R01 EY01071-09	04/01/79- 03/31/82	1(A)	42,784	21,788	64,572
HICKEY, TERRY L Development of the Retinogeniculate System University of Alabama, Birmingham/Physiological Optics Birmingham, Alabama	2 R01 EY01338-06A1	09/30/77- 02/29/84	1(B)	61,617	21,566	83,183
HICKEY, TERRY L Development of the Human Lateral Geniculate Nucleus University of Alabama, Birmingham/Physiological Optics Birmingham, Alabama	5 R01 EY02159-04	01/01/78- 12/31/81	1(B)	44,842	15,695	60,537

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HIGHSTEIN, STEPHEN M Morphophysiology of Pre-Nuclear Oculomotor Neurons Yeshiva University/Neuroscience New York, New York	2 R01 EY01670-07	08/01/81- 07/31/86	5(A)	134,019	74,283	208,302
HIRSCH, HELMUT V Development and Functions of the Visual Cortex State University of New York, Albany/Biological Sciences Albany, New York	5 R01 EY01268-09	06/30/76- 06/30/82	1(B)	68,741	31,795	100,536
HODOS, WILLIAM A Behavioral Analysis of Visual System Evolution University of Maryland, College Park/Psychology College Park, Maryland	5 R01 EY00735-11	06/01/77- 05/31/84	2(B)	71,855	30,742	102,597
HOFFMAN, PAUL N Axonal Regeneration Through Optic Nerve Johns Hopkins University/Ophthalmology Baltimore, Maryland	1 R23 EY03791-01	12/01/80- 11/30/83	1(A)	34,625	18,698	53,323
HOTSON, JOHN R Supranuclear Control of Fixation Eye Movements Institute for Medical Research, Santa Clara County/Neurology San Jose, California	1 R01 EY03387-01	07/01/80- 12/31/83	6(B)	0	0	0
HOWLAND, HOWARD C Refractive Studies of Infant and Adult Human Eyes Cornell University/Neurobiology and Behavior Ithaca, New York	2 R01 EY02994-03	07/01/79- 06/30/84	3(A)	45,753	10,887	56,640
HUBEL, DAVID H Organization of the Visual System Harvard University/Neurobiology Boston, Massachusetts	5 R01 EY00605-22	12/01/77- 11/30/82	2(B)	167,308	200,770	368,078
HUNG, GEORGE K Vergence Accommodation in Binocular Fixation Rutgers, The State University, New Brunswick/Electrical Engineering New Brunswick, New Jersey	1 R01 EY03709-01	05/01/81- 04/30/84	5(B)	37,705	13,159	50,864
INGLING, CARL R, JR The Color and Brightness Channels of the Visual System Ohio State University/Division of Sensory Biophysics Columbus, Ohio	5 R01 EY03236-03	09/30/79- 09/29/82	2(C)	34,673	10,912	45,585
INGOGLIA, NICHOLAS A Axonal RNA in Regenerating Optic Nerves of Goldfish College of Medicine and Dentistry of New Jersey/Physiology Newark, New Jersey	5 R01 EY02887-03	12/01/78- 11/30/81	1(A)	31,691	22,614	54,305
JACOBS, GERALD H Cone-Dominated and Rod-Dominated Visual Systems University of California, Santa Barbara/Psychology Santa Barbara, California	5 R01 EY00105-12	07/01/77- 06/30/82	2(B)	62,701	20,389	83,090
JACOBS, GERALD H Within-Species Variations in Visual Capacity University of California, Santa Barbara/Psychology Santa Barbara, California	5 R01 EY02052-04	09/30/77- 03/31/82	2(C)	0	0	0

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JOHNSON, CHRIS A Perimetry and Clinical Psychophysics University of California, Davis/Ophthalmology Davis, California	1 R01 EY03424-01	01/01/81-12/31/83	2(C)	99,133	18,785	117,918
JONES, RONALD Clinical Implications of Vergence-Anomaly Ohio State University/Physiological Optics Columbus, Ohio	5 R01 EY02532-03	08/01/78-11/30/82	5(B)	0	0	0
KAAS, JON H Functional Organization of the Primate Visual System Vanderbilt University/Psychology Nashville, Tennessee	2 R01 EY02686-07	06/01/78-06/30/86	2(B)	87,659	27,888	115,547
KAISERMAN-ABRAMOF, ITA R Structure and Development of the Visual System Case Western Reserve University/Anatomy Cleveland, Ohio	5 R01 EY01018-08	06/01/76-12/31/82	1(B)	0	0	0
KALIL, RONALD E Developmental Studies of the Visual System University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	5 R01 EY01331-08	07/01/78-06/30/83	1(B)	75,822	33,866	109,688
KARTEN, HARVEY J Retinal Ganglion Cells and Accessory Optic Nuclei Long Island Research Institute/Psychobiology Stony Brook, New York	5 R01 EY02146-05	08/01/77-07/31/85	4	36,901	42,232	79,133
KASAMATSU, TAKUJI Monoaminergic Control of Developing Visual Neurons California Institute of Technology Pasadena, California	5 R01 EY03409-02	04/01/80-03/31/83	1(A)	67,794	32,541	100,335
KAUFMAN, LLOYD Neuromagnetic Analysis of the Visual System New York University/Psychology New York, New York	5 R01 EY02059-03	12/01/78-03/31/82	2(C)	81,889	39,500	121,389
KEATING, E GREGORY Recovery From Cortical Blindness Upstate Medical Center/Anatomy Syracuse, New York	5 R01 EY02941-03	09/01/78-08/31/82	3(B)	0	0	0
KECK, MAX J Intraocular Transfer of Aftereffects in Strabismus John Carroll University/Physics University Heights, Ohio	5 R01 EY02087-04	08/01/78-07/31/83	6(A)	22,550	9,372	31,922
KELLER, EDWARD L The Oculomotor System of Alert Primates Institutes of Medical Sciences/Smith-Kettlewell Institute of Visual Sciences San Francisco, California	5 R01 EY03280-03	07/01/79-06/30/85	5(A)	65,979	32,123	98,102
KELLY, DONALD H Processing of Elementary Visual Stimuli SRI International/Visual Sciences Program Menlo Park, California	5 R01 EY01128-08	05/01/75-04/30/85	2(C)	104,154	110,862	215,016

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KELLY, REGIS B Proteins of the Mammalian Visual System University of California, San Francisco/Biochemistry and Biophysics San Francisco, California	5 R01 EY02306-03	02/01/78–02/28/81	2(A)	0	0	0
KERTESZ, ANDREW E Functional Aspects of Panum's Fusional Areas Northwestern University/Electrical Engineering and Computer Science Evanston, Illinois	5 R01 EY01055-10	06/30/79–06/29/84	5(B)	76,156	33,185	109,341
KING, WILLIAM M The Oculomotor System: Neural Structure and Function Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY02717-03	12/01/78–06/30/81	5(A)	20,335	17,979	38,314
KING, WILLIAM M The Oculomotor System: Neural Structure and Function University of Rochester/Physiology Rochester, New York	7 R01 EY04045-01	07/01/81–11/30/81	5(A)	23,061	17,065	40,126
KNIGHT, BRUCE W, JR Mathematical Analyses of Neural Networks Rockefeller University/Biophysics New York, New York	5 R01 EY01428-08	09/01/77–08/31/82	2(B)	61,459	33,065	94,524
KONISHI, MASAKAZU Comparative Physiology of Binocular Vision California Institute of Technology Pasadena, California	5 R01 EY01909-05	02/01/77–01/31/82	1(B)	44,925	21,564	66,489
KRISS, JOSEPH P Cell-Mediated Cytoxicity in Graves' Ophthalmopathy Stanford University/Radiology Stanford, California	5 R01 EY03065-03	09/30/79–09/29/82	6(B)	53,203	31,897	85,100
KRONAUER, RICHARD E Cone Inputs to Spatial Detectors Harvard University/Division of Applied Sciences Cambridge, Massachusetts	5 R01 EY01808-05	06/30/76–02/28/83	2(C)	44,390	22,060	66,450
LAEMLE, LOIS K An Experimental Study of the Developing Visual System University of Medicine and Dentistry of New Jersey/Anatomy Newark, New Jersey	5 R01 EY01174-06	04/01/78–03/31/81	1(B)	0	0	0
LE VAY, SIMON Development and Plasticity of the Visual System Harvard University/Neurobiology Boston, Massachusetts	5 R01 EY01960-05	04/01/77–03/31/85	1(B)	58,742	72,890	131,632
LEGENDY, CHARLES R Extraretinal Influences on Striate Cortex Neurons Yeshiva University/Neuroscience New York, New York	5 R01 EY03072-02	07/01/80–06/30/83	2(B)	55,073	47,363	102,436
LEGGE, GORDON E Binocular Interactions in Pattern Vision University of Minnesota, Minneapolis-St Paul/Psychology Minneapolis, Minnesota	5 R01 EY02857-03	12/01/78–11/30/82	2(C)	30,111	11,928	42,039

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LEHMKUHLE, STEPHEN W Different Populations in the Visual System Brown University/Psychology Providence, Rhode Island	1 R01 EY03524-01A1	08/01/81–07/31/84	1(B)	72,082	21,336	93,418
LEIBOWITZ, HERSCHEL W Analytic Studies of Visual Perception Pennsylvania State University, University Park/Psychology University Park, Pennsylvania	5 R01 EY03276-18	07/01/79–06/30/82	2(C)	43,829	14,262	58,091
LEVENTHAL, AUDIE G Extra-Striate Visual Cortex University of Utah/Anatomy Salt Lake City, Utah	1 R01 EY03427-01A1	05/01/81–04/30/84	1(B)	93,258	26,837	120,095
LEVI, DENNIS M Contrast Sensitivity in Amblyopia University of Houston/Clinical Optometric Sciences Houston, Texas	5 R01 EY01728-06	05/01/76–06/30/82	3(A)	37,454	11,998	49,452
LEVINSON, EUGENE M Movement and Pattern Analysis in Human Vision Washington University/Psychology St. Louis, Missouri	5 R01 EY03077-03	08/01/79–07/31/82	2(C)	19,271	10,380	29,651
LEVINSON, JOHN Z Spatial and Temporal Properties of Vision University of Maryland, College Park/Psychology College Park, Maryland	5 R01 EY01640-06	05/01/79–04/30/82	2(C)	78,325	30,883	109,208
LIEM, RONALD K Synthesis and Development of Neurofilaments in Optic Nerve New York University/Pharmacology New York, New York	1 R01 EY03849-01	09/30/81–09/29/84	1(A)	44,712	16,373	61,085
LISBERGER, STEPHEN G Neural Control of Eye Movement University of California, San Francisco/Physiology San Francisco, California	1 R01 EY03878-01	09/01/81–08/31/84	5(A)	98,528	20,872	119,400
LIT, ALFRED Effects of Illumination on Binocular Space Perception Southern Illinois University, Carbondale/Psychology Carbondale, Illinois	5 R01 EY00383-17	07/01/79–06/30/83	2(C)	47,882	28,730	76,612
LOOP, MICHAEL S Psychophysical Effects of Visual Deprivation University of Alabama, Birmingham/Physiological Optics Birmingham, Alabama	5 R01 EY03303-04	08/01/79–07/31/82	1(C)	47,107	16,238	63,345
LUND, JENNIFER S Structural Basis for Processing Visual Information Medical University of South Carolina/Ophthalmology Charleston, South Carolina	5 R01 EY03321-03	08/01/79–07/31/84	1(B)	146,319	29,067	175,386
LUND, RAYMOND D Transplantation Studies of the Rat Visual System Medical University of South Carolina/Anatomy Charleston, South Carolina	5 R01 EY03326-03	08/01/79–07/31/83	1(B)	60,033	18,610	78,643

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LUND, RAYMOND D Development and Plasticity of Visual Connections Medical University of South Carolina/Anatomy Charleston, South Carolina	5 R01 EY03414–03	09/01/79–02/29/84	1(A)	74,770	23,618	98,388
LYNCH, JAMES C Oculomotor Control Mechanisms of the Cerebral Cortex University of Mississippi Medical Center/Anatomy Jackson, Mississippi	2 R01 EY04159–04	09/01/81–08/31/84	5(A)	77,508	27,102	104,610
MACIEWICZ, RAYMOND J Organization of Brainstem Oculomotor Pathways Massachusetts General Hospital/Neurology Service Boston, Massachusetts	1 R01 EY03853–01	08/01/81–07/31/84	5(A)	87,350	20,608	107,958
MACK, ARIEN Eye Movements and the Perception of Motion and Stability New School for Social Research/Psychology New York, New York	5 R01 EY01135–07	08/01/77–08/31/83	5(A)	28,273	11,108	39,381
MALPELI, JOSEPH G Roles of LGN Subnuclei in Cortical Visual Processing University of Illinois, Urbana-Champaign/Psychology Urbana, Illinois	5 R01 EY02695–03	12/01/78–11/30/81	2(B)	34,439	10,681	45,120
MARCHASE, RICHARD B Ligatin: A Baseplate Protein in Retinotectal Adhesion Duke University/Anatomy Durham, North Carolina	5 R01 EY02845–03	12/01/78–11/30/81	1(A)	109,371	56,692	166,063
MARROCCO, RICHARD T Physiology of Visual Afferent Pathways University of Oregon/Psychology Eugene, Oregon	5 R01 EY01286–06	12/01/78–06/30/82	2(B)	49,112	19,841	68,953
MASON, MILDRED Reading Disability and the Encoding of Visual Stimuli Iowa State University of Science and Technology/Psychology Ames, Iowa	5 R01 EY01813–06	07/01/79–06/30/82	2(C)	18,005	7,112	25,117
MATIN, ETHEL Psychophysical Studies of Sensitivity to Orientation Long Island University, C. W. Post Center/Psychology Greenvale, New York	5 R01 EY02951–03	05/01/79–04/30/83	2(C)	12,711	5,768	18,479
MATIN, LEONARD Eye Movements and Visual Direction Columbia University/Psychology New York, New York	5 R01 EY00375–08	04/01/74–06/30/81	2(C)	0	0	0
MATIN, LEONARD Visual Direction with Normal and Immobilized Eyes Columbia University/Psychology New York, New York	1 R01 EY03198–01A2	05/01/81–04/30/84	2(C)	93,831	35,873	129,704
MAY, JAMES G Aspects of Binocular Vision in Strabismus Louisiana State University Medical Center, New Orleans/ Ophthalmology New Orleans, Louisiana	5 R01 EY03107–03	08/01/79–07/31/82	6(A)	30,841	7,560	38,401

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MAY, JAMES G Far-Field Recording of Optic Nerve Responses Louisiana State University Medical Center, New Orleans/ Ophthalmology New Orleans, Louisiana	5 R01 EY03483-02	07/01/80-06/30/83	2(C)	22,336	5,584	27,920
MAYER, MELANIE J Development of Anisotropic Visual Sensitivity University of California, Santa Cruz/Psychology Santa Cruz, California	5 R01 EY02445-02	09/30/78-05/31/82	1(C)	0	0	0
MAYS, LAWRENCE E Neural Mechanisms of Vergence Eye Movements University of Alabama, Birmingham/Physiological Optics Birmingham, Alabama	5 R01 EY03463-02	09/01/80-08/31/83	5(B)	29,922	10,053	39,975
MC ILWAIN, JAMES T Cortical Control of Superior Colliculus Brown University/Neurosciences Providence, Rhode Island	2 R01 EY02505-09	02/01/78-01/31/85	5(A)	55,227	18,786	74,013
MC KANNA, JAMES A Ophthalmic Parameters in the Development of Myopia Vanderbilt University/Anatomy Nashville, Tennessee	2 R01 EY02221-04	01/01/78-12/31/85	7	85,576	32,252	117,828
MC KENNA, OLIVIA C Functional Anatomy of Accessory Optic System/Pretectum City College of New York/Biology New York, New York	1 R01 EY03613-01	12/01/80-11/30/83	5(A)	56,296	23,109	79,405
MC LOON, STEVEN C Neuronal Patterns in the Developing Visual System Medical University of South Carolina/Anatomy Charleston, South Carolina	1 R23 EY03314-01	05/01/80-04/30/81	1(B)	0	0	0
MC LOON, STEVEN C Neuronal Patterns in the Developing Visual System Medical University of South Carolina/Anatomy Charleston, South Carolina	1 R01 EY03713-01	05/01/81-04/30/83	1(B)	36,478	6,503	42,981
METZ, HENRY S Quantitative Measurements for Strabismus Management University of Rochester/Ophthalmology Rochester, New York	1 R01 EY03891-01	08/01/81-07/31/84	6(A)	51,540	33,700	85,240
MICHAEL, CHARLES R Neurophysiology of All-Cone Vision Yale University/Physiology New Haven, Connecticut	5 R01 EY00568-13	12/01/76-11/30/81	2(B)	93,025	51,164	144,189
MILLER, NEIL R Clinical Investigations in Ocular Motility Disorders Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY02272-03	08/01/78-07/31/81	6(B)	0	0	0
MINDEL, JOEL S Depolarizing Nicotinic Antagonists and Eye Position Mount Sinai School of Medicine/Ophthalmology New York, New York	5 R01 EY03203-02	06/01/80-05/31/83	6(A)	54,361	24,462	78,823

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MIZE, RICHARD R Neural Circuitry in the Superior Colliculus University of Tennessee Center for Health Science/Anatomy Memphis, Tennessee	5 R01 EY02973-03	08/01/79–07/31/82	2(B)	42,058	17,314	59,372
MONTERO, VICENTE M Normal and Abnormal Visual Pathways in Mammals University of Wisconsin, Madison/Neurophysiology Madison, Wisconsin	5 R01 EY02877-03	02/01/79–01/31/82	2(B)	60,487	26,377	86,864
MOTE, MICHAEL I Cellular Basis of Visual Integration Temple University/Biology Philadelphia, Pennsylvania	5 R01 EY00784-09	09/01/77–02/28/81	2(B)	0	0	0
MOUNTCASTLE, VERNON B The Neocortex and Higher Cerebral Functions Johns Hopkins University/Physiology Baltimore, Maryland	5 R01 EY03167-03	06/01/79–05/31/84	2(B)	169,978	84,768	254,746
MOVSHON, J ANTHONY Quantitative Studies of the Central Visual System New York University/Psychology New York, New York	5 R01 EY02017-05	08/01/77–07/31/85	2(B)	48,292	22,570	70,862
MOWER, GEORGE D Nondeprivation Models of Amblyopia Children's Hospital Medical Center/Neurology Boston, Massachusetts	5 R01 EY03335-02	08/01/80–07/31/83	1(B)	60,298	30,801	91,099
MURPHY, E HAZEL Development and Function of the Visual System Medical College of Pennsylvania/Anatomy Philadelphia, Pennsylvania	2 R01 EY02488-04	05/01/78–04/30/86	1(B)	85,318	43,313	128,631
NAGY, ALLEN L Psychophysics of Normal and Defective Color Vision University of California, San Diego/Center for Human Information Processing La Jolla, California	1 R01 EY03907-01	08/01/81–07/31/84	2(C)	50,545	15,669	66,214
NAKAYAMA, KEN Three-Dimensional Aspects of Vision and Oculomotility Medical Research Institute of San Francisco San Francisco, California	5 R01 EY01582-06	08/01/78–07/31/81	6(A)	0	0	0
NAKAYAMA, KEN Visual Evoked Potentials Institutes of Medical Sciences/Smith-Kettlewell Institute of Visual Sciences San Francisco, California	1 R01 EY03598-01	02/01/81–01/31/84	2(C)	73,441	33,380	106,821
NAKAYAMA, KEN Spatial Organizaiton of Human Vision Medical Research Institute of San Francisco San Francisco, California	1 R01 EY03884-01	08/01/81–07/31/84	2(C)	69,819	33,252	103,071
NODA, HIROHARU Neuronal Basis of Visual Perception in Eye Movements University of California, Los Angeles/Brain Research Institute Los Angeles, California	5 R01 EY01051-08	12/01/76–06/30/81	5(A)	52,606	16,964	69,570

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NODA, HIROHARU Neuronal Basis of Visual Perception in Eye Movements Indiana University, Bloomington/Visual Sciences Bloomington, Indiana	7 R01 EY04063-01	07/01/81-11/30/82	5(A)	37,775	12,357	50,132
NORDEN, JEANETTE J Studies of Synaptogenesis in the Optic Tectum Vanderbilt University/Anatomy Nashville, Tennessee	1 R01 EY03718-01	09/01/81-08/31/84	1(A)	80,219	25,409	105,628
NORTHCUTT, RICHARD G Vision in Gars--Anatomical and Behavioral Organization University of Michigan, Ann Arbor/Division of Biological Sciences Ann Arbor, Michigan	5 R01 EY02485-04	04/01/78-03/31/82	2(B)	36,267	22,770	59,037
NORTHMORE, DAVID P Function in Growing and Regenerating Visual Systems University of Delaware Newark, Delaware	5 R01 EY02697-03	12/01/78-11/30/81	1(A)	35,071	15,391	50,462
NORTON, THOMAS T Neural Mechanisms of Extrastriate and Striate Vision University of Alabama, Birmingham/Physiological Optics Birmingham, Alabama	5 R01 EY02909-04	08/01/78-04/30/83	2(B)	35,697	16,602	52,299
ODOM, JAMES V Normal and Abnormal Development of Binocularity University of Florida/Ophthalmology Gainesville, Florida	1 R01 EY03781-01	08/01/81-07/31/84	1(C)	47,258	16,765	64,023
ORNITZ, EDWARD M Maturation of Vestibular Nystagmus University of California, Los Angeles/Mental Retardation Research Center Los Angeles, California	5 R01 EY02612-03	09/30/78-12/31/82	4	81,324	25,722	107,046
PARNAVELAS, JOHN G Visual Cortex Development University of Texas Health Sciences Center, Dallas/Cell Biology Dallas, Texas	5 R01 EY02964-03	04/01/79-03/31/82	1(B)	43,656	16,422	60,078
PARNAVELAS, JOHN G Visual Cortex Development: Neurotransmitters University of Texas Health Sciences Center, Dallas/Cell Biology Dallas, Texas	1 R01 EY03783-01	09/30/81-09/29/83	1(A)	57,339	20,068	77,407
PASIK, TAUBA Maturation of Monkey Visual and Basal Ganglia Systems Mount Sinai School of Medicine/Neurology New York, New York	5 R01 EY01926-03	04/01/78-03/31/81	1(B)	0	0	0
PASTERNAK, TATIANA Development of Vision in Stroboscopic Illumination University of Rochester/Center for Visual Science Rochester, New York	3 R01 EY01875-03S3	09/30/77-02/28/82	1(C)	1,570	942	2,512
PATON, MARTHA C Experiments on the Development of Neural Pathways Princeton University/Biology Princeton, New Jersey	5 R01 EY01872-05	02/01/77-03/31/83	1(B)	71,773	41,699	113,472

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PEARLMAN, ALAN L Functional Organization of the Visual System Washington University/Physiology and Biophysics St. Louis, Missouri	5 R01 EY00621-08	08/01/78-03/31/82	1(B)	0	0	0
PEARSON, ANTHONY A The Development of the Eye and its Adnexa Oregon Health Sciences University/Anatomy Portland, Oregon	5 R01 EY02275-03	01/01/78-03/15/81	1(B)	0	0	0
PETERSON, BARRY W Properties of Premotor Neurons in Gaze Control System Rockefeller University/Neurophysiology New York, New York	2 R01 EY02249-04	02/01/78-05/31/81	5(A)	19,817	10,058	29,875
PETERSON, BARRY W Properties of Premotor Neurons in Gaze Control System Northwestern University/Physiology Chicago, Illinois	7 R01 EY04058-01	06/01/81-01/31/86	5(A)	73,500	18,600	92,100
PETTIGREW, JOHN D Visual Cortical Neurons California Institute of Technology Pasadena, California	5 R01 EY03291-06	07/01/78-06/30/81	1(B)	0	0	0
PINTO, LAWRENCE H Mammalian Visual Mutants Purdue University, West Lafayette/Biological Sciences West Lafayette, Indiana	2 R01 EY02536-04	08/01/78-07/31/86	4	85,091	30,406	115,497
POGGIO, GIAN F Binocular Vision and Depth Perception Johns Hopkins University/Physiology Baltimore, Maryland	5 R01 EY02966-03	06/01/79-05/31/84	2(B)	101,274	51,934	153,208
POKORNY, JOEL M Psychophysical Studies of Color-Defective Observers University of Chicago/Ophthalmology Chicago, Illinois	5 R01 EY00901-08	04/01/77-03/31/82	2(C)	54,686	46,019	100,705
POLA, JORDAN R The Mechanism of Smooth Pursuit Eye Movements New York State College of Optometry/Basic Optometric Sciences New York, New York	5 R01 EY02878-03	12/01/78-05/31/82	5(A)	18,729	8,293	27,022
POLLEN, DANIEL A Spatial Selectivity in Visual Cortices St. Joseph's Hospital and Medical Center/Division of Neurobiology Phoenix, Arizona	5 R01 EY03290-03	07/01/79-12/31/84	2(B)	86,724	34,221	120,945
POWERS, MAUREEN K Neural Basis of Visual Threshold Vanderbilt University/Psychology Nashville, Tennessee	5 R01 EY03352-02	09/01/80-08/31/83	2(B)	19,823	9,119	28,942
RAKIC, PASKO T Prenatal Development of the Primate Visual System Yale University/Neuroanatomy New Haven, Connecticut	2 R01 EY02593-04	08/01/78-07/31/86	1(B)	115,402	64,631	180,033

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RAO, NARSING A Pathology and Pathogenesis of Optic Neuritis Georgetown University/Ophthalmology Washington, D.C.	5 R01 EY02155-03	12/01/78-11/30/81	3(B)	48,039	26,174	74,213
RAPISARDI, SALVATORE C Fine Structure of Labeled Cells in Lateral Geniculate Howard University/Anatomy Washington, D.C.	5 R01 EY02953-03	08/01/79-07/31/82	2(B)	44,263	33,197	77,460
RATLIFF, FLOYD Neural Mechanisms of Contrast Effects in Vision Rockefeller University/Biophysics New York, New York	2 R01 EY00188-25A1	02/01/75-11/30/85	2(B)	71,039	32,762	103,801
RATLIFF, FLOYD Visual Stimulator/Data Analyzer for Clinical Research Rockefeller University/Biophysics New York, New York	2 R01 EY02439-04	09/01/78-08/31/84	2(C)	54,500	29,321	83,821
READING, ROGERS W Fusional Stimuli and Corresponding Points Indiana University, Bloomington/Visual Sciences Bloomington, Indiana	1 R01 EY03864-01	08/01/81-07/31/84	5(B)	32,741	10,964	43,705
REGAN, DAVID Psychophysical and EP Assessment of Visual Pathology Dalhousie University/Medicine Halifax, Canada	5 R01 EY03058-03	09/01/79-08/31/82	2(C)	19,764	0	19,764
RHOADES, ROBERT W Structure and Function of Intertectal Pathway New Jersey School of Osteopathic Medicine/Anatomy Piscataway, New Jersey	1 R01 EY03546-01	12/01/80-11/30/83	2(B)	32,118	13,045	45,163
RIGGS, LORRIN A Visual Significance of Eye Blinks Brown University/Psychology Providence, Rhode Island	5 R01 EY03169-02	09/30/79-12/31/82	5(C)	30,504	15,342	45,846
ROBINSON, DAVID A Study of Oculomotor Control System Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY00598-13	05/01/79-04/30/84	5(A)	69,582	37,870	107,452
ROBSON, JOHN A Studies of the Visual System Upstate Medical Center/Anatomy Syracuse, New York	5 R01 EY03490-02	09/30/80-09/29/83	1(A)	57,961	25,595	83,556
RODIECK, ROBERT W Primate Color Vision University of Washington/Ophthalmology Seattle, Washington	5 R01 EY02923-03	08/01/79-07/31/82	2(B)	65,909	23,332	89,241
ROSENQUIST, ALAN C Extrageniculate Visual Pathways in Animals University of Pennsylvania/Anatomy Philadelphia, Pennsylvania	5 R01 EY02654-04	09/01/78-08/31/82	2(B)	62,412	40,568	102,980

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ROTHBLAT, LAWRENCE A Early Visual Exposure: Brain Morphology and Behavior George Washington University/Psychology Washington, D.C.	5 R01 EY03304–06	08/01/79–07/31/82	1(B)	26,798	12,649	39,447
RUSOFF, ANNE C Paths of Individual Axons in the Visual System Oklahoma State University, Stillwater/Physiological Sciences Stillwater, Oklahoma	5 R01 EY03666–02	08/01/80–04/30/83	1(B)	31,180	5,147	36,327
SAKITT, BARBARA Problems in Human Vision Massachusetts Institute of Technology/Psychology Cambridge, Massachusetts	5 R01 EY03412–02	09/01/79–04/30/83	2(C)	0	0	0
SAVINO, PETER J Host Immunologic Response in Graves' Ophthalmopathy Wills Eye Hospital and Research Institute/Neuro-Ophthalmology Service Philadelphia, Pennsylvania	5 R01 EY02631–04	08/01/78–07/31/82	6(B)	35,173	24,234	59,407
SCHILLER, PETER H Studies of Interaction Between Eye Movement and Vision Massachusetts Institute of Technology/Psychology Cambridge, Massachusetts	5 R01 EY00676–11	05/01/79–04/30/84	5(A)	97,015	40,670	137,685
SCHLAG-REY, MADELEINE L Single-Unit Studies of Visuo-Oculomotor Mechanisms University of California, Los Angeles/Anatomy Los Angeles, California	2 R01 EY02305–04	08/01/78–07/31/84	5(A)	75,653	21,489	97,142
SCHMIDT, JOHN T Activity and Trophism in Synaptic Stabilization State University of New York, Albany/Biological Sciences Albany, New York	1 R01 EY03736–01	05/01/81–04/30/84	2(A)	45,718	12,649	58,367
SCHMIDT, MARIE L CLB--A Morphological Correlate of Visual Function University of Pennsylvania/Anatomy Philadelphia, Pennsylvania	5 R01 EY03693–02	09/01/80–11/30/81	2(B)	40,908	26,590	67,498
SCHNEIDER, GERALD E Neuropsychological Studies of the Visual System Massachusetts Institute of Technology/Psychology Cambridge, Massachusetts	5 R01 EY00126–12	03/01/79–02/28/82	1(B)	110,130	70,951	181,081
SCHOR, CLIFTON M Abnormal Eye Movements in Strabismus and Amblyopia University of California, Berkeley/Optometry Clinic Berkeley, California	5 R01 EY02573–02	11/01/77–05/31/81	6(A)	0	0	0
SCHOR, CLIFTON M Visual Development of Sensory and Motor Functions University of California, Berkeley/Optometry Berkeley, California	1 R01 EY03532–01	09/30/81–09/29/84	4	33,877	7,030	40,907
SCHWEITZER-TONG, DAN E Visual Latency of X- and Y-Cells in Retina and LGN Northwestern University/Engineering Science and Applied Math Evanston, Illinois	5 R23 EY03738–02	09/01/80–08/31/83	2(B)	30,146	16,940	47,086

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SCOTT, ALAN B Chemical Alteration of Extraocular Muscle Function Institutes of Medical Sciences/Smith-Kettlewell Institute of Visual Sciences San Francisco, California	5 R01 EY02106-04	09/01/80-07/31/83	6(A)	36,804	18,139	54,943
SCOTT, ALAN B Eyelid Movements and Forces Institutes of Medical Sciences/Smith-Kettlewell Institute of Visual Sciences San Francisco, California	5 R01 EY03153-03	08/01/79-07/31/82	6(B)	32,769	16,614	49,383
SHAPLEY, ROBERT M Spatial Summation and Dynamics of Visual Neurons Rockefeller University/Biophysics New York, New York	5 R01 EY01472-07	09/01/74-06/30/85	2(B)	48,643	26,170	74,813
SHARMA, SANSAR C Genesis of Neural Specificity in the Visual System New York Medical College/Ophthalmology Valhalla, New York	5 R01 EY01426-07	06/01/78-05/31/83	1(A)	43,720	29,383	73,103
SHATZ, CARLA J Prenatal and Postnatal Development of Visual Connections Stanford University/Neurobiology Stanford, California	5 R01 EY02858-03	01/01/79-12/31/81	1(B)	59,595	33,289	92,884
SHEBILSKE, WAYNE L Visuomotor Coordination University of Virginia, Charlottesville/Psychology Charlottesville, Virginia	5 R01 EY02291-03	01/01/78-12/31/81	2(C)	0	0	0
SHERMAN, S MURRAY Effects of Visual Deprivation on the Visual System State University of New York, Stony Brook/Anatomical Sciences Stony Brook, New York	5 R01 EY03038-03	07/01/79-06/30/84	1(B)	124,999	56,094	181,093
SHERMAN, S MURRAY Functional Ultrastructure of Central Visual Pathways State University of New York, Stony Brook/Anatomical Sciences Stony Brook, New York	1 R01 EY03604-01	05/01/81-04/30/84	2(B)	136,573	43,014	179,587
SIDMAN, RICHARD L Optic Nerve Axon Growth in Mouse Pigmentation Mutants Children's Hospital Medical Center/Neurology Boston, Massachusetts	5 R01 EY03225-03	09/30/79-09/29/82	1(B)	50,552	29,523	80,075
SIEGFRIED, JOHN B Oscillatory Potentials in the Visual System Pennsylvania College of Optometry/Neuro-Visual Sciences Philadelphia, Pennsylvania	5 R01 EY03467-02	07/01/80-06/30/83	2(C)	34,770	0	34,770
SKAVENSKI, ALEXANDER A Eye Movement and Mechanisms of Visual Localization Northeastern University/Psychology Boston, Massachusetts	5 R01 EY02409-04	04/01/78-03/31/83	5(A)	31,619	15,204	46,823

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
SMITH, EARL L, III Optically Induced Anisometropia in Monkeys University of Houston/Clinical Optometric Sciences Houston, Texas	1 R01 EY03611-01	02/01/81–01/31/84	1(C)	54,565	13,269	67,834
SMITH, VIVIANNE C Trichromacy in Protanopes and Deuteranopes University of Chicago/Ophthalmology Chicago, Illinois	5 R01 EY01876-05	09/30/77–09/29/82	2(C)	23,213	19,970	43,183
SNODDERLY, D MAX, JR Functional Description of Visual Mechanisms Eye Research Institute of Retina Foundation Boston, Massachusetts	5 R01 EY01520-05	04/01/79–03/31/81	2(B)	0	0	0
SOKOL, SAMUEL ERG and VECP as Indices of Photopic Dysfunction New England Medical Center Hospital/Ophthalmology Boston, Massachusetts	5 R01 EY00926-08	04/01/79–03/31/84	1(C)	84,708	20,076	104,784
SPARKS, DAVID L Eye Movement Control: Role of Brain Stem Neurons University of Alabama, Birmingham/Physiology and Biophysics Birmingham, Alabama	5 R01 EY01189-09	08/01/76–07/31/82	5(A)	47,809	18,905	66,714
SPARKS, DAVID L Effects of Deprivation on the Oculomotor System University of Alabama, Birmingham/Optometry Birmingham, Alabama	2 R01 EY02293-04	01/01/78–12/31/83	4	74,879	21,483	96,362
SPEAR, PETER D Visual Integration in the Brain University of Wisconsin, Madison/Psychology Madison, Wisconsin	5 R01 EY01916-06	06/01/76–06/30/85	1(B)	71,877	30,091	101,968
SPEAR, PETER D Binocular Interactions in Visual System Development University of Wisconsin, Madison/Psychology Madison, Wisconsin	5 R01 EY02545-04	08/01/78–07/31/82	1(B)	56,107	23,322	79,429
SPECIALE, SAMUEL G, JR Neurochemistry of the Retinohypothalamic Projection University of Texas Health Sciences Center, Dallas/Psychiatry Dallas, Texas	5 R01 EY03327-02	08/01/80–07/31/83	2(A)	34,893	12,910	47,803
SPENCER, ROBERT F Anatomy of Oculomotor Systems Virginia Commonwealth University/Anatomy Richmond, Virginia	2 R01 EY02191-04	01/01/78–12/31/83	5(A)	88,532	19,503	108,035
SPRAGUE, JAMES M Brain Mechanisms of Visual Learning and Transfer University of Pennsylvania/Anatomy Philadelphia, Pennsylvania	3 R01 EY00577-15S1	03/01/76–11/30/81	2(B)	2,580	1,677	4,257
SPRINGER, ALAN D Transient Retinal Projections During Regeneration New York Medical College/Anatomy Valhalla, New York	1 R01 EY03552-01A1	08/01/81–07/31/84	1(A)	41,766	24,254	66,020

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
SREBRO, RICHARD Pseudorandom Stimuli for Clinical VEP Testing University of Texas Health Sciences Center, Dallas/ Ophthalmology Dallas, Texas	5 R01 EY03068-03	08/01/79- 07/31/82	2(C)	52,548	19,147	71,695
STANTON, GREGORY B Neuronal Connections of the Frontal Eye Fields Howard University/Anatomy Washington, D.C.	1 R01 EY03763-01	09/01/81- 08/31/84	5(A)	56,450	13,125	69,575
STERLING, PETER Microcircuitry of the Visual System University of Pennsylvania/Anatomy Philadelphia, Pennsylvania	5 R01 EY00828-10	04/01/77- 03/31/82	2(B)	105,454	68,948	174,402
STONE, JONATHAN Studies of the Retina and Visual Pathways University of New South Wales/Anatomy Kensington, Australia	5 R01 EY02671-03	01/01/79- 12/31/81	2(B)	44,950	0	44,950
STRYKER, MICHAEL P Development and Plasticity of the Visual System University of California, San Francisco/Physiology San Francisco, California	5 R01 EY02874-03	12/01/78- 11/30/81	1(B)	64,561	19,704	84,265
STUART, ANN E Neural Mechanisms in Processing Visual Information University of North Carolina, Chapel Hill/Physiology Chapel Hill, North Carolina	2 R01 EY03347-03	08/01/79- 07/31/86	2(B)	92,384	34,977	127,361
TAKAHASHI, ELLEN S Specific Retinal Inputs to Central Visual Nuclei University of Alabama, Birmingham/Physiological Optics Birmingham, Alabama	1 R01 EY03895-01	08/01/81- 07/31/84	5(A)	26,208	6,817	33,025
TELLER, DAVIDA Y Psychophysical Studies of Infant Vision University of Washington/Psychology Seattle, Washington	5 R01 EY02920-03	09/01/79- 08/31/84	1(C)	27,197	10,078	37,275
THOMAS, JAMES P Mechanisms of Spatial Pattern Vision University of California, Los Angeles/Psychology Los Angeles, California	5 R01 EY00360-15	08/01/76- 07/31/84	2(C)	28,740	13,387	42,127
THOMPSON, H STANLEY Pupillary and VER Indicators of Optic Nerve Disease University of Iowa/Ophthalmology Iowa City, Iowa	1 R01 EY03500-01	07/01/80- 06/30/81	3(B)	0	0	0
TIEMAN, SUZANNAH Anatomical Effects of Restricted Early Vision State University of New York, Albany/Biological Sciences Albany, New York	5 R01 EY02609-03	08/01/79- 07/31/82	1(B)	39,259	16,520	55,779
TIGGES, JOHANNES W The Efferent Fibers of the Visual Cortices Emory University/Neurobiology Atlanta, Georgia	5 R01 EY00638-10	09/01/78- 08/31/83	2(B)	54,386	22,266	76,652

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
TOWNS, LEX C Anatomical Interconnections of the Visual System Kirksville College of Osteopathic Medicine/Anatomy Kirksville, Missouri	2 R01 EY02285-04	02/01/78–05/31/84	2(B)	23,031	8,312	31,343
TULUNAY-KEESEY, ULKER Motion of Retinal Image and Contrast Sensitivity University of Wisconsin, Madison/Ophthalmology Madison, Wisconsin	5 R01 EY02483-03	08/01/78–11/30/82	2(C)	0	0	0
TUNKL-BLUMSACK, JUDITH E Tectal Function in Vision: A Behavioral Analysis Florida State University/Psychology Tallahassee, Florida	5 R01 EY02259-03	01/01/78–06/30/81	2(C)	0	0	0
TYLER, CHRISTOPHER W Normal and Abnormal Spatial Development Institutes of Medical Sciences/Smith-Kettlewell Institute of Visual Sciences San Francisco, California	1 R01 EY03622-01	05/01/81–04/30/84	1(C)	75,132	30,165	105,297
UDIN, SUSAN B Effect of Visual Experience on CNS Connectivity State University of New York, Buffalo/Physiology Buffalo, New York	5 R01 EY03470-02	07/01/80–06/30/83	1(B)	40,434	1,620	42,054
UPDYKE, BRUCE V Visual and Association Connections of Pulvinar Louisiana State University Medical Center, New Orleans/Anatomy New Orleans, Louisiana	5 R01 EY01925-05	04/01/77–03/31/84	2(B)	43,455	11,241	54,696
VAN ESSEN, DAVID C Functional Organization of Extrastriate Visual Cortex California Institute of Technology Pasadena, California	5 R01 EY02091-05	08/03/77–07/31/84	2(B)	86,052	40,131	126,183
VAN SLUYTERS, RICHARD C Animal Models of Developmental Visual Disorders University of California, Berkeley/Physiological Optics Berkeley, California	2 R01 EY02193-04A1	01/01/78–03/31/86	1(B)	78,735	17,216	95,951
VON NOORDEN, GUNTER K Clinical and Laboratory Studies of Amblyopia Baylor College of Medicine/Ophthalmology Houston, Texas	5 R01 EY01120-08	03/01/76–12/31/81	6(A)	0	0	0
WALLMAN, JOSHUA Role of Vision in Etiology of Axial Myopia City College of New York/Biology New York, New York	5 R01 EY02727-03	12/01/78–11/30/81	7	45,463	26,402	71,865
WALLMAN, JOSHUA Role of Accessory Optic System in Oculomotor Control City College of New York/Biology New York, New York	5 R01 EY02937-03	04/01/79–03/31/82	5(A)	45,300	26,951	72,251
WANDELL, BRIAN A Wavelength Discrimination at Modulation Threshold Stanford University/Psychology Stanford, California	5 R01 EY03164-03	07/01/79–06/30/82	2(C)	18,176	10,542	28,718

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
WEBER, JOSEPH T Connections of Extrageniculate Visual Pathways Tulane University of Louisiana/Anatomy New Orleans, Louisiana	1 R01 EY03731-01	05/01/81- 04/30/84	2(B)	75,617	14,637	90,254
WEISSTEIN, NAOMI Global Factors in Visual Representation State University of New York, Buffalo/Psychology Buffalo, New York	5 R01 EY03047-02	07/01/79- 06/30/83	2(C)	25,958	8,615	34,573
WESTHEIMER, GERALD Retinal and Central Visual Functions University of California, Berkeley/Physiology-Anatomy Berkeley, California	5 R01 EY00220-20	12/01/77- 11/30/82	2(C)	32,565	13,952	46,517
WESTHEIMER, GERALD Oculomotor Control University of California, Berkeley/Physiology-Anatomy Berkeley, California	5 R01 EY00592-13	02/01/77- 07/31/82	5(A)	91,583	29,246	120,829
WHEELER, WILLIAM Vision: Spatial, Temporal and Adapting Effects University of South Florida/Psychology Tampa, Florida	5 R01 EY02921-03	08/01/78- 07/31/81	2(C)	0	0	0
WHITE, KEITH D Spatial Orientation University of Florida/Psychology Gainesville, Florida	1 R23 EY03640-01	06/01/81- 05/31/84	5(A)	37,498	12,404	49,902
WIESEL, TORSTEN N Studies of the Visual System Harvard University/Neurology Boston, Massachusetts	2 R01 EY00606-18	09/01/76- 09/29/86	1(B)	137,959	99,469	237,428
WIESEL, TORSTEN N Experimental Myopia in Primates Harvard University/Neurobiology Boston, Massachusetts	5 R01 EY01966-05	04/01/77- 03/31/82	7	32,212	38,654	70,866
WIESEL, TORSTEN N Molecular and Cellular Mechanisms in Vision Harvard University/Neurobiology Boston, Massachusetts	1 R01 EY04179-01	09/30/81- 09/29/86	1(A)	65,304	58,729	124,033
WILLARD, MARK B Axonally Transported Proteins in the Visual System Washington University/Anatomy and Neurobiology St. Louis, Missouri	2 R01 EY02682-07	06/01/78- 05/31/85	2(A)	93,963	30,788	124,751
WILSON, HUGH R The Spatiotemporal Basis of Grating Perception University of Chicago/Biophysics and Theoretical Biology Chicago, Illinois	5 R01 EY02158-03	01/01/78- 10/31/81	2(C)	0	0	0
WILSON, JAMES R Development of Central Visual Pathways State University New York, Stony Brook/Anatomical Sciences Stony Brook, New York	5 R01 EY03345-02	08/01/79- 05/31/82	1(B)	0	0	0

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Alphabetical Listing—Continued

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
WINTERKORN, JACQUELINE M Visual Behavior Following Paralytic Strabismus Cornell University Medical Center/Anatomy New York, New York	5 R01 EY02240–03	09/01/78– 08/31/81	6(A)	0	0	0
WINTERS, RAY W Single Cell Studies in Optic Tract University of Miami/Psychology Coral Gables, Florida	5 R01 EY00701–05	08/01/76– 06/30/81	2(B)	0	0	0
WINTERSON, BARBARA J Sensory Neural Codes in Compensatory Eye Movements University of New England/Physiology Biddeford, Maine	1 R01 EY03638–01	12/01/80– 11/30/83	5(A)	86,796	15,464	102,260
WOODWARD, WILLIAM R Mammalian Visual System: Neurotransmitter, Screening Oregon Health Sciences University/Neurology Portland, Oregon	5 R01 EY02456–03	08/01/78– 07/31/82	2(A)	0	0	0
YIN, TOM C Central Nervous System Control of Eye Movements University of Wisconsin, Madison/Neurophysiology Madison, Wisconsin	2 R01 EY02606–04	08/01/78– 07/31/84	5(A)	67,634	24,260	91,894
YOUNG, ROCKEFELLER S Psychophysical Study of Photopic Abnormalities University of Illinois Medical Center/Ophthalmology Chicago, Illinois	5 R01 EY03062–03	08/01/79– 07/31/82	2(C)	37,167	21,185	58,352
ZEE, DAVID S Oculomotor Disorders: Clinical and Experimental Study Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 R01 EY01849–06	09/30/76– 09/29/82	5(A)	23,278	14,466	37,744
ZEPPETELLA, ANTHONY J Study of Adapting Bump Model of the Eye of *Limulus* Clarkson College of Technology/Mathematics Potsdam, New York	5 R01 EY02161–02	01/01/79– 12/31/80	2(B)	0	0	0
Total Active Research Grants in this Program in FY 1981: 303 **Total Research Grants in this Program Receiving FY 1981 Funds: 249** **Total FY 1981 Dollars Supporting Research Grants in this Program:**				**14,652,823**	**6,695,159**	**21,347,982**

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
VISUAL PROCESSING AND AMBLYOPIA		
1. Normal and Abnormal Development		
1A. Molecular		
Adler, Ruben	Visual Neurons: Development and Regeneration in Vitro University of California, San Diego/Biology	$90,762
Freeman, John A	Synaptic Organization of the Optic Tectum Vanderbilt University/Anatomy	140,359
Goldberg, Stephen J	Mammalian Retinal Regeneration University of Miami/Anatomy	86,311
Grafstein, Bernice	Effects of Darkness on Developing Visual System Cornell University Medical Center/Physiology and Biophysics	48,048
Hendrickson, Anita E	Primate Visual System Development and Deprivation University of Washington/Ophthalmology	131,670
Hibbard, Emerson	Visual Restoration Pennsylvania State University, University Park/Biology	64,572
Hoffman, Paul N	Axonal Regeneration Through Optic Nerve Johns Hopkins University/Ophthalmology	53,323
Ingoglia, Nicholas A	Axonal RNA in Regenerating Optic Nerves of Goldfish College of Medicine and Dentistry of New Jersey/Physiology	54,305
Kasamatsu, Takuji	Monoaminergic Control of Developing Visual Neurons California Institute of Technology	100,335
Liem, Ronald K	Synthesis and Development of Neurofilaments in Optic Nerve New York University/Pharmacology	61,085
Lund, Raymond D	Development and Plasticity of Visual Connections Medical University of South Carolina/Anatomy	98,388
Marchase, Richard B	Ligatin: A Baseplate Protein in Retinotectal Adhesion Duke University/Anatomy	166,063
Norden, Jeanette J	Studies of Synaptogenesis in the Optic Tectum Vanderbilt University/Anatomy	105,628
Northmore, David P	Function in Growing and Regenerating Visual Systems University of Delaware	50,462
Parnavelas, John G	Visual Cortex Development: Neurotransmitters University of Texas Health Sciences Center, Dallas/Cell Biology	77,407
Robson, John A	Studies of the Visual System Upstate Medical Center/Anatomy	83,556
Sharma, Sansar C	Genesis of Neural Specificity in the Visual System New York Medical College/Ophthalmology	73,103
Springer, Alan D	Transient Retinal Projections During Regeneration New York Medical College/Anatomy	66,020
Wiesel, Torsten N	Molecular and Cellular Mechanisms in Vision Harvard University/Neurobiology	124,033

Total Active Research Grants in this Area in FY 1981: 19
Total Research Grants in this Area Receiving FY 1981 Funds: 19
Total FY 1981 Dollars Supporting Research Grants in this Area: 1,675,430

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
1B. Cell and Systems		
Brunso-Bechtold, Judy K	Anatomical Studies of Visual System Development Vanderbilt University/Anatomy	75,616
Casagrande, Vivien A	Effects of Visual Deprivation in Primates Vanderbilt University/Anatomy	80,264
Chow, Kao L	Neurology of Vision and Learning Stanford University/Neurology	114,198
Collier, Linda L	Visual System Studies in Chediak-Higashi Animals University of Missouri, Columbia/Veterinary Pathology	63,743
Cowan, W Maxwell	Anatomical Studies of Visual and Sensory Deprivation Salk Institute for Biological Studies/Developmental Neurobiology	131,324
Crossland, William J	Development and Maintenance of Visual Connections Wayne State University/Anatomy	64,095
Daniels, Jerry D	Binocular Vision: Interactions on Area 18 Neurons Brown University/Engineering	0
Drager, Ursula C	The Visual System in Normal and Abnormal Mice Harvard University/Neurobiology	136,345
Easter, Stephen S, Jr	Retinal Growth and Its Consequences University of Michigan, Ann Arbor/Division of Biological Sciences	36,404
Fifkova, Eva	Visual Deprivation Effect on Synapses of Visual Centers University of Colorado, Boulder/Psychology	65,479
Freeman, Ralph D	Visual Development and Deprivation University of California, Berkeley/Optometry	102,144
Friedlander, Michael J	Development of Structure/Function in the Visual System University of Alabama, Birmingham/Physiology and Biophysics	87,163
Frost, Douglas O	Function of Ectopic Retinal Projections in Hamsters Yale University/Neuroanatomy	65,894
George, Stephen A	Vision in Triploid Animals Amherst College/Biology	0
Grant, Philip	Optic Fiber Patterns: Ontogeny of Neuronal Connections University of Oregon/Biology	64,026
Grobstein, Paul	Development of Connectivity in Anuran Visual Systems University of Chicago/Pharmacological and Physiological Sciences	58,657
Guillery, Rainer W	Abnormalities in Visual Pathways University of Chicago/Pharmacological and Physiological Sciences	136,675
Hamasaki, Duco I	Studies of the Visual System of Amblyopic Patients University of Miami/Ophthalmology	162,102
Harting, John K	Cortical Effects of Sensory Deprivation University of Wisconsin, Madison/Anatomy	96,582
Hickey, Terry L	Development of the Retinogeniculate System University of Alabama, Birmingham/Physiological Optics	83,183
Hickey, Terry L	Development of the Human Lateral Geniculate Nucleus University of Alabama, Birmingham/Physiological Optics	60,537
Hirsch, Helmut V	Development and Functions of the Visual Cortex State University of New York, Albany/Biological Sciences	100,536
Kaiserman-Abramof, Ita R	Structure and Development of the Visual System Case Western Reserve University/Anatomy	0

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
KALIL, RONALD E	Developmental Studies of the Visual System University of Wisconsin, Madison/Ophthalmology	109,688
KONISHI, MASAKAZU	Comparative Physiology of Binocular Vision California Institute of Technology	66,489
LAEMLE, LOIS K	An Experimental Study of the Developing Visual System University of Medicine and Dentistry of New Jersey/Anatomy	0
LE VAY, SIMON	Development and Plasticity of the Visual System Harvard University/Neurobiology	131,632
LEHMKUHLE, STEPHEN W	Different Populations in the Visual System Brown University/Psychology	93,418
LEVENTHAL, AUDIE G	Extra-Striate Visual Cortex University of Utah/Anatomy	120,095
LUND, JENNIFER S	Structural Basis for Processing Visual Information Medical University of South Carolina/Ophthalmology	175,386
LUND, RAYMOND D	Transplantation Studies of the Rat Visual System Medical University of South Carolina/Anatomy	78,643
MC LOON, STEVEN C	Neuronal Patterns in the Developing Visual System Medical University of South Carolina/Anatomy	0
MC LOON, STEVEN C	Neuronal Patterns in the Developing Visual System Medical University of South Carolina/Anatomy	42,981
MOWER, GEORGE D	Nondeprivation Models of Amblyopia Children's Hospital Medical Center/Neurology	91,099
MURPHY, E HAZEL	Development and Function of the Visual System Medical College of Pennsylvania/Anatomy	128,631
PARNAVELAS, JOHN G	Visual Cortex Development University of Texas Health Sciences Center, Dallas/Cell Biology	60,078
PASIK, TAUBA	Maturation of Monkey Visual and Basal Ganglia Systems Mount Sinai School of Medicine/Neurology	0
PATON, MARTHA C	Experiments on the Development of Neural Pathways Princeton University/Biology	113,472
PEARLMAN, ALAN L	Functional Organization of the Visual System Washington University/Physiology and Biophysics	0
PEARSON, ANTHONY A	The Development of the Eye and its Adnexa Oregon Health Sciences University/Anatomy	0
PETTIGREW, JOHN D	Visual Cortical Neurons California Institute of Technology	0
RAKIC, PASKO T	Prenatal Development of the Primate Visual System Yale University/Neuroanatomy	180,033
ROTHBLAT, LAWRENCE A	Early Visual Exposure: Brain Morphology and Behavior George Washington University/Psychology	39,447
RUSOFF, ANNE C	Paths of Individual Axons in the Visual System Oklahoma State University, Stillwater/Physiological Sciences	36,327
SCHNEIDER, GERALD E	Neuropsychological Studies of the Visual System Massachusetts Institute of Technology/Psychology	181,081
SHATZ, CARLA J	Prenatal and Postnatal Development of Visual Connections Stanford University/Neurobiology	92,884
SHERMAN, S MURRAY	Effects of Visual Deprivation on the Visual System State University of New York, Stony Brook/Anatomical Sciences	181,093

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Sidman, Richard L	Optic Nerve Axon Growth in Mouse Pigmentation Mutants Children's Hospital Medical Center/Neurology	80,075
Spear, Peter D	Visual Integration in the Brain University of Wisconsin, Madison/Psychology	101,968
Spear, Peter D	Binocular Interactions in Visual System Development University of Wisconsin, Madison/Psychology	79,429
Stryker, Michael P	Development and Plasticity of the Visual System University of California, San Francisco/Physiology	84,265
Tieman, Suzannah	Anatomical Effects of Restricted Early Vision State University of New York, Albany/Biological Sciences	55,779
Udin, Susan B	Effect of Visual Experience on CNS Connectivity State University of New York, Buffalo/Physiology	42,054
Van Sluyters, Richard C	Animal Models of Developmental Visual Disorders University of California, Berkeley/Physiological Optics	95,951
Wiesel, Torsten N	Studies of the Visual System Harvard University/Neurology	237,428
Wilson, James R	Development of Central Visual Pathways State University New York, Stony Brook/Anatomical Sciences	0
Total Active Research Grants in this Area in FY 1981: 56 **Total Research Grants in this Area Receiving FY 1981 Funds: 46** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**4,484,393**

1C. Behavior

Blake, R Randolph	Spatial Vision in Normal and Visually Deprived Animals Northwestern University/Psychology	46,291
Boothe, Ronald G	Development of Spatial Vision University of Washington/Psychology	93,202
Fox, Robert	The Suppression Mechanism in Binocular Rivalry Vanderbilt University/Psychology	94,932
Held, Richard M	Vision and Visuomotor Mechanisms Massachusetts Institute of Technology/Psychology	115,631
Loop, Michael S	Psychophysical Effects of Visual Deprivation University of Alabama, Birmingham/Physiological Optics	63,345
Mayer, Melanie J	Development of Anisotropic Visual Sensitivity University of California, Santa Cruz/Psychology	0
Odom, James V	Normal and Abnormal Development of Binocularity University of Florida/Ophthalmology	64,023
Pasternak, Tatiana	Development of Vision in Stroboscopic Illumination University of Rochester/Center for Visual Science	2,512
Smith, Earl L, III	Optically Induced Anisometropia in Monkeys University of Houston/Clinical Optometric Sciences	67,834
Sokol, Samuel	ERG and VECP as Indices of Photopic Dysfunction New England Medical Center Hospital/Ophthalmology	104,784
Teller, Davida Y	Psychophysical Studies of Infant Vision University of Washington/Psychology	37,275

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
TYLER, CHRISTOPHER W	Normal and Abnormal Spatial Development Institutes of Medical Sciences/Smith-Kettlewell Institute of Visual Sciences	105,297
Total Active Research Grants in this Area in FY 1981: 12 **Total Research Grants in this Area Receiving FY 1981 Funds: 11** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**795,126**
Total Active Research Grants in this Subprogram in FY 1981: 87 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 76** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**6,954,949**

2. Structure and Function

2A. Molecular

BARNSTABLE, COLIN J	Immunological Analysis of the Mammalian Visual System Harvard University/Neurobiology	112,984
BAUGHMAN, ROBERT W	Neurotransmitters in the Central Visual Pathway Harvard University/Neurobiology	105,408
DAW, NIGEL W	Neural Mechanisms of Vision Washington University/Physiology and Biophysics	130,080
KELLY, REGIS B	Proteins of the Mammalian Visual System University of California, San Francisco/Biochemistry and Biophysics	0
SCHMIDT, JOHN T	Activity and Trophism in Synaptic Stabilization State University of New York, Albany/Biological Sciences	58,367
SPECIALE, SAMUEL G, JR	Neurochemistry of the Retinohypothalamic Projection University of Texas Health Sciences Center, Dallas/Psychiatry	47,803
WILLARD, MARK B	Axonally Transported Proteins in the Visual System Washington University/Anatomy and Neurobiology	124,751
WOODWARD, WILLIAM R	Mammalian Visual System: Neurotransmitter, Screening Oregon Health Sciences University/Neurology	0
Total Active Research Grants in this Area in FY 1981: 8 **Total Research Grants in this Area Receiving FY 1981 Funds: 6** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**579,393**

2B. Cell and Systems

ALLMAN, JOHN M	Functional Organization of Visual Cortex California Institute of Technology	106,901
BAIZER, JOAN S	Organization of Visual Function in Prestriate Cortex State University of New York, Buffalo/Physiology	1,188
BAKER, FRANK H	Thalamic Mechanisms in Visual Processing Johns Hopkins University/Ophthalmology	0
BARLOW, ROBERT B, JR	Functional Organization of the Visual System Syracuse University/Institute for Sensory Research	166,554
BENDER, DAVID B	Visual Functions of the Monkey Pulvinar State University of New York, Buffalo/Physiology	53,699
BENEVENTO, LOUIS A	Visual, Sensory, Motor, and Associational Systems University of Illinois Medical Center/Ophthalmology	61,881
BERKLEY, MARK A	Neural Mechanisms in Spatial Vision Florida State University/Psychology	82,199

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Bonds, Alfred B, III	Spatial Adaptation of Neurons in the Striate Cortex Vanderbilt University/Electrical and Biomedical Engineering	23,861
Brooks, Barbara A	Visual Processing During Eye Movement University of Texas Health Science Center, San Antonio/ Physiology	0
Carey, Russell G	Primate Visual System: Connectivity of Ascending Systems St. Joseph's Hospital and Medical Center/Neurobiology	83,885
Carlson, Stanley D	Neuropile Reconstruction by HVEM and Other Methods University of Wisconsin, Madison/Entomology	0
Chalupa, Leo M	Tectorecipient Zone of LP-Pulvinar University of California, Davis/Psychology	38,649
Cotter, John R	Efferent Projections from Accessory Optic Nuclei State University of New York, Buffalo/Anatomical Sciences	0
Crawford, Morris L	Excitability of Visual Pathways University of Texas Health Science Center, Houston/Sensory Sciences Center	0
De Valois, Russell L	Electrophysiology of Color Vision University of California, Berkeley/Psychology	97,061
Dow, Bruce M	Foveal Vision in the Alert Rhesus Monkey State University of New York, Buffalo/Physiology	78,226
Dubin, Mark W	Receptive Field Organization in the Visual System University of Colorado, Boulder/Molecular, Cellular, and Developmental Biology	68,925
Emerson, Robert C	Image Movement: Neural Processing Mechanisms University of Rochester/Center for Visual Science	0
Engbretson, Gustav A	Visual Information Processing by the Parietal Eye Syracuse University/Institute for Sensory Research	139,853
Enroth-Cugell, Christina A	Retinal Ganglion Cell Responses to Time-Varying Stimuli Northwestern University/Engineering Science and Applied Math	94,139
Fahrenbach, Wolf H	Structure of Neuronal Circuitry in Sensory Ganglia Medical Research Foundation of Oregon/Electron Microscopy	30,323
Fernald, Russell D	Neural Basis of Visual Pattern Recognition in Fish University of Oregon/Biology	19,712
Glickstein, Mitchell	Visual Input to the Cerebellum Brown University/Psychology	111,470
Goldsmith, Timothy H	Avian Color Vision Yale University/Biology	9,847
Granda, Allen M	Processing of Visual Information University of Delaware	72,962
Graybiel, Ann M	An Analysis of Extrageniculate Visual Mechanisms Massachusetts Institute of Technology/Psychology	108,797
Harth, Erich	New Approaches in Vision Research Syracuse University/Physics	0
Hodos, William	A Behavioral Analysis of Visual System Evolution University of Maryland, College Park/Psychology	102,597
Hubel, David H	Organization of the Visual System Harvard University/Neurobiology	368,078
Jacobs, Gerald H	Cone-Dominated and Rod-Dominated Visual Systems University of California, Santa Barbara/Psychology	83,090

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
KAAS, JON H	Functional Organization of the Primate Visual System Vanderbilt University/Psychology	115,547
KNIGHT, BRUCE W, JR	Mathematical Analyses of Neural Networks Rockefeller University/Biophysics	94,524
LEGENDY, CHARLES R	Extraretinal Influences on Striate Cortex Neurons Yeshiva University/Neuroscience	102,436
MALPELI, JOSEPH G	Roles of LGN Subnuclei in Cortical Visual Processing University of Illinois, Urbana-Champaign/Psychology	45,120
MARROCCO, RICHARD T	Physiology of Visual Afferent Pathways University of Oregon/Psychology	68,953
MICHAEL, CHARLES R	Neurophysiology of All-Cone Vision Yale University/Physiology	144,189
MIZE, RICHARD R	Neural Circuitry in the Superior Colliculus University of Tennessee Center for Health Science/Anatomy	59,372
MONTERO, VICENTE M	Normal and Abnormal Visual Pathways in Mammals University of Wisconsin, Madison/Neurophysiology	86,864
MOTE, MICHAEL I	Cellular Basis of Visual Integration Temple University/Biology	0
MOUNTCASTLE, VERNON B	The Neocortex and Higher Cerebral Functions Johns Hopkins University/Physiology	254,746
MOVSHON, J ANTHONY	Quantitative Studies of the Central Visual System New York University/Psychology	70,862
NORTHCUTT, RICHARD G	Vision in Gars--Anatomical and Behavioral Organization University of Michigan, Ann Arbor/Division of Biological Sciences	59,037
NORTON, THOMAS T	Neural Mechanisms of Extrastriate and Striate Vision University of Alabama, Birmingham/Physiological Optics	52,299
POGGIO, GIAN F	Binocular Vision and Depth Perception Johns Hopkins University/Physiology	153,208
POLLEN, DANIEL A	Spatial Selectivity in Visual Cortices St. Joseph's Hospital and Medical Center/Division of Neurobiology	120,945
POWERS, MAUREEN K	Neural Basis of Visual Threshold Vanderbilt University/Psychology	28,942
RAPISARDI, SALVATORE C	Fine Structure of Labeled Cells in Lateral Geniculate Howard University/Anatomy	77,460
RATLIFF, FLOYD	Neural Mechanisms of Contrast Effects in Vision Rockefeller University/Biophysics	103,801
RHOADES, ROBERT W	Structure and Function of Intertectal Pathway New Jersey School of Osteopathic Medicine/Anatomy	45,163
RODIECK, ROBERT W	Primate Color Vision University of Washington/Ophthalmology	89,241
ROSENQUIST, ALAN C	Extrageniculate Visual Pathways in Animals University of Pennsylvania/Anatomy	102,980
SCHMIDT, MARIE L	CLB--A Morphological Correlate of Visual Function University of Pennsylvania/Anatomy	67,498
SCHWEITZER-TONG, DAN E	Visual Latency of X- and Y-Cells in Retina and LGN Northwestern University/Engineering Science and Applied Math	47,086
SHAPLEY, ROBERT M	Spatial Summation and Dynamics of Visual Neurons Rockefeller University/Biophysics	74,813

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
SHERMAN, S MURRAY	Functional Ultrastructure of Central Visual Pathways State University of New York, Stony Brook/Anatomical Sciences	179,587
SNODDERLY, D MAX, JR	Functional Description of Visual Mechanisms Eye Research Institute of Retina Foundation	0
SPRAGUE, JAMES M	Brain Mechanisms of Visual Learning and Transfer University of Pennsylvania/Anatomy	4,257
STERLING, PETER	Microcircuitry of the Visual System University of Pennsylvania/Anatomy	174,402
STONE, JONATHAN	Studies of the Retina and Visual Pathways University of New South Wales/Anatomy	44,950
STUART, ANN E	Neural Mechanisms in Processing Visual Information University of North Carolina, Chapel Hill/Physiology	127,361
TIGGES, JOHANNES W	The Efferent Fibers of the Visual Cortices Emory University/Neurobiology	76,652
TOWNS, LEX C	Anatomical Interconnections of the Visual System Kirksville College of Osteopathic Medicine/Anatomy	31,343
UPDYKE, BRUCE V	Visual and Association Connections of Pulvinar Louisiana State University Medical Center, New Orleans/Anatomy	54,696
VAN ESSEN, DAVID C	Functional Organization of Extrastriate Visual Cortex California Institute of Technology	126,183
WEBER, JOSEPH T	Connections of Extrageniculate Visual Pathways Tulane University of Louisiana/Anatomy	90,254
WINTERS, RAY W	Single Cell Studies in Optic Tract University of Miami/Psychology	0
ZEPPETELLA, ANTHONY J	Study of Adapting Bump Model of the Eye of *Limulus* Clarkson College of Technology/Mathematics	0
Total Active Research Grants in this Area in FY 1981: 67 **Total Research Grants in this Area Receiving FY 1981 Funds: 56** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**4,978,668**

2C. Behavior

AREND, LAWRENCE E	Analysis of Frequency Channels in Vision Brandeis University/Psychology	43,879
ARMINGTON, JOHN C	Stimulus Alternation and Visual Potentials Northeastern University/Psychology	75,547
BODIS-WOLLNER, IVAN G	Parallel Pathways in Vision Mount Sinai School of Medicine/Neurology	128,797
BODIS-WOLLNER, IVAN G	Conference on Evoked Potentials New York Academy of Sciences/Neurology	5,000
BOYNTON, ROBERT M	Psychophysiological and Optical Studies of Vision University of California, San Diego/Psychology	90,991
COGAN, ALEXANDER I	A Temporal Aspect of Binocular Vision Institutes of Medical Sciences	83,057
COHEN, JOSEPH D	Adaptation in Normal and Deficient Color Vision Mount Holyoke College/Psychology	0
CRANE, HEWITT D	Binocular Visual Processes and Instrumentation SRI International/Visual Science Program	221,654

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Ebenholtz, Sheldon M	Determinants of Perceptual Orientation University of Wisconsin, Madison/Psychology	0
Enoch, Jay M	Clinical Application of Hyperacuity and Related Studies University of California, Berkeley/Optometry	80,482
Fox, Robert	Stereoscopic Vision in Animals Vanderbilt University/Psychology	0
Frumkes, Thomas E	Rod-Cone Interaction in Vertebrate Vision Queens College/Psychology	86,642
Hall, Richard W, Jr	Implementation of Visual Information Processing University of Pittsburgh/Electrical Engineering	0
Ingling, Carl R, Jr	The Color and Brightness Channels of the Visual System Ohio State University/Division of Sensory Biophysics	45,585
Jacobs, Gerald H	Within-Species Variations in Visual Capacity University of California, Santa Barbara/Psychology	0
Johnson, Chris A	Perimetry and Clinical Psychophysics University of California, Davis/Ophthalmology	117,918
Kaufman, Lloyd	Neuromagnetic Analysis of the Visual System New York University/Psychology	121,389
Kelly, Donald H	Processing of Elementary Visual Stimuli SRI International/Visual Sciences Program	215,016
Kronauer, Richard E	Cone Inputs to Spatial Detectors Harvard University/Division of Applied Sciences	66,450
Legge, Gordon E	Binocular Interactions in Pattern Vision University of Minnesota, Minneapolis-St Paul/Psychology	42,039
Leibowitz, Herschel W	Analytic Studies of Visual Perception Pennsylvania State University, University Park/Psychology	58,091
Levinson, Eugene M	Movement and Pattern Analysis in Human Vision Washington University/Psychology	29,651
Levinson, John Z	Spatial and Temporal Properties of Vision University of Maryland, College Park/Psychology	109,208
Lit, Alfred	Effects of Illumination on Binocular Space Perception Southern Illinois University, Carbondale/Psychology	76,612
Mason, Mildred	Reading Disability and the Encoding of Visual Stimuli Iowa State University of Science and Technology/Psychology	25,117
Matin, Ethel	Psychophysical Studies of Sensitivity to Orientation Long Island University, C. W. Post Center/Psychology	18,479
Matin, Leonard	Eye Movements and Visual Direction Columbia University/Psychology	0
Matin, Leonard	Visual Direction with Normal and Immobilized Eyes Columbia University/Psychology	129,704
May, James G	Far-Field Recording of Optic Nerve Responses Louisiana State University Medical Center, New Orleans/Ophthalmology	27,920
Nagy, Allen L	Psychophysics of Normal and Defective Color Vision University of California, San Diego/Center for Human Information Processing	66,214
Nakayama, Ken	Visual Evoked Potentials Institutes of Medical Sciences/Smith-Kettlewell Institute of Visual Sciences	106,821
Nakayama, Ken	Spatial Organizaiton of Human Vision Medical Research Institute of San Francisco	103,071

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Pokorny, Joel M	Psychophysical Studies of Color-Defective Observers University of Chicago/Ophthalmology	100,705
Ratliff, Floyd	Visual Stimulator/Data Analyzer for Clinical Research Rockefeller University/Biophysics	83,821
Regan, David	Psychophysical and EP Assessment of Visual Pathology Dalhousie University/Medicine	19,764
Sakitt, Barbara	Problems in Human Vision Massachusetts Institute of Technology/Psychology	0
Shebilske, Wayne L	Visuomotor Coordination University of Virginia, Charlottesville/Psychology	0
Siegfried, John B	Oscillatory Potentials in the Visual System Pennsylvania College of Optometry/Neuro-Visual Sciences	34,770
Smith, Vivianne C	Trichromacy in Protanopes and Deuteranopes University of Chicago/Ophthalmology	43,183
Srebro, Richard	Pseudorandom Stimuli for Clinical VEP Testing University of Texas Health Sciences Center, Dallas/Ophthalmology	71,695
Thomas, James P	Mechanisms of Spatial Pattern Vision University of California, Los Angeles/Psychology	42,127
Tulunay-Keesey, Ulker	Motion of Retinal Image and Contrast Sensitivity University of Wisconsin, Madison/Ophthalmology	0
Tunkl-Blumsack, Judith E	Tectal Function in Vision: A Behavioral Analysis Florida State University/Psychology	0
Wandell, Brian A	Wavelength Discrimination at Modulation Threshold Stanford University/Psychology	28,718
Weisstein, Naomi	Global Factors in Visual Representation State University of New York, Buffalo/Psychology	34,573
Westheimer, Gerald	Retinal and Central Visual Functions University of California, Berkeley/Physiology-Anatomy	46,517
Wheeler, William	Vision: Spatial, Temporal and Adapting Effects University of South Florida/Psychology	0
Wilson, Hugh R	The Spatiotemporal Basis of Grating Perception University of Chicago/Biophysics and Theoretical Biology	0
Young, Rockefeller S	Psychophysical Study of Photopic Abnormalities University of Illinois Medical Center/Ophthalmology	58,352
Total Active Research Grants in this Area in FY 1981: 49 **Total Research Grants in this Area Receiving FY 1981 Funds: 37** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**2,739,559**
Total Active Research Grants in this Subprogram in FY 1981: 124 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 99** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**8,297,620**

3. Disorders

3A. Amblyopia

Cohn, Theodore E	Psychophysical Analysis of Visual Sensory Deficit University of California, Berkeley/Physiological Optics	41,817
Cox, Terry A	Dynamics of Afferent Pupillary Defects University of Nebraska Medical Center/Ophthalmology	49,260

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Dobson, Margaret V	Clinical Assessment of Visual Acuity University of Washington/Psychology	111,436
Duffy, Frank H	The Role of Inhibition in Experimental Amblyopia Children's Hospital Medical Center/Neurology	131,147
Eggers, Howard M	Animal Model of Human Amblyopia Columbia University/Ophthalmology	0
Flom, Merton C	Sensory and Motor Mechanisms in Functional Amblyopia University of Houston	97,774
Harwerth, Ronald S	Behavioral Measures of Binocular Vision University of Houston/Basic and Optometric Sciences	75,978
Held, Richard M	Development of Amblyopia in Early Cataract and Strabismus Massachusetts Institute of Technology/Psychology	0
Howland, Howard C	Refractive Studies of Infant and Adult Human Eyes Cornell University/Neurobiology and Behavior	56,640
Levi, Dennis M	Contrast Sensitivity in Amblyopia University of Houston/Clinical Optometric Sciences	49,452
Total Active Research Grants in this Area in FY 1981: 10 **Total Research Grants in this Area Receiving FY 1981 Funds: 8** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**613,504**
3B. Sensory Neuro-Ophthalmic Disorders		
Agamanolis, Dimitris P	Vitamin B_{12} Deficiency in Rhesus Monkeys Children's Hospital Medical Center of Akron/Neuropathology	0
Keating, E Gregory	Recovery From Cortical Blindness Upstate Medical Center/Anatomy	0
Rao, Narsing A	Pathology and Pathogenesis of Optic Neuritis Georgetown University/Ophthalmology	74,213
Thompson, H Stanley	Pupillary and VER Indicators of Optic Nerve Disease University of Iowa/Ophthalmology	0
Total Active Research Grants in this Area in FY 1981: 4 **Total Research Grants in this Area Receiving FY 1981 Funds: 1** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**74,213**
Total Active Research Grants in this Subprogram in FY 1981: 14 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 9** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**687,717**

OCULAR MOTILITY AND STRABISMUS

4. Normal and Abnormal Development

Karten, Harvey J	Retinal Ganglion Cells and Accessory Optic Nuclei Long Island Research Institute/Psychobiology	79,133
Ornitz, Edward M	Maturation of Vestibular Nystagmus University of California, Los Angeles/Mental Retardation Research Center	107,046
Pinto, Lawrence H	Mammalian Visual Mutants Purdue University, West Lafayette/Biological Sciences	115,497
Schor, Clifton M	Visual Development of Sensory and Motor Functions University of California, Berkeley/Optometry	40,907

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
SPARKS, DAVID L	Effects of Deprivation on the Oculomotor System University of Alabama, Birmingham/Optometry	96,362
Total Active Research Grants in this Subprogram in FY 1981: 5 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 5** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**438,945**

5. Structure and Function

5A. Conjugate Eye Movements

BAKER, ROBERT G	Eye Movement: Physiological Organization New York University/Physiology and Biophysics	115,341
BARMACK, NEAL H	Central and Peripheral Control of Eye Position Good Samaritan Hospital and Medical Center/Ophthalmology	110,845
BARMACK, NEAL H	Central and Peripheral Control of Eye Position University of Connecticut, Storrs/Biological Sciences	36,890
BLANKS, ROBERT H	Eye Movement Control University of California, Irvine/Anatomy	0
COHEN, BERNARD	Visual Control of the Oculomotor System Mount Sinai School of Medicine/Neurology	84,841
FENDER, DEREK H	Children's Development of Reading Strategies California Institute of Technology/Jorgensen Laboratory of Information Science	0
FENDER, DEREK H	The Influence of Peripheral Vision on Visual Performance California Institute of Technology/Jorgensen Laboratory of Information Science	93,432
FOOTE, WARREN E	Studies of Retinal Afferents to the Brain Stem Raphe Massachusetts General Hospital/Psychiatry Service	85,953
FUCHS, ALBERT F	Neurophysiology of the Oculomotor System University of Washington/Physiology and Biophysics	107,986
FUCHS, ALBERT F	Neuroanatomy of the Oculomotor System University of Washington/Physiology and Biophysics	47,971
GIOLLI, ROLAND A	Projections of Medial Accessory Optic Nucleus University of California, Irvine/Anatomy	65,551
GOLDBERG, STEPHEN J	Inputs to Abducens Neurons: An Intracellular Study Virginia Commonwealth University/Anatomy	0
HALL, WILLIAM C	Structural Organization of the Superior Colliculus Duke University/Anatomy	55,477
HIGHSTEIN, STEPHEN M	Morphophysiology of Pre-Nuclear Oculomotor Neurons Yeshiva University/Neuroscience	208,302
KELLER, EDWARD L	The Oculomotor System of Alert Primates Institutes of Medical Sciences/Smith-Kettlewell Institute of Visual Sciences	98,102
KING, WILLIAM M	The Oculomotor System: Neural Structure and Function Johns Hopkins University/Ophthalmology	38,314
KING, WILLIAM M	The Oculomotor System: Neural Structure and Function University of Rochester/Physiology	40,126
LISBERGER, STEPHEN G	Neural Control of Eye Movement University of California, San Francisco/Physiology	119,400
LYNCH, JAMES C	Oculomotor Control Mechanisms of the Cerebral Cortex University of Mississippi Medical Center/Anatomy	104,610

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Maciewicz, Raymond J	Organization of Brainstem Oculomotor Pathways Massachusetts General Hospital/Neurology Service	107,958
Mack, Arien	Eye Movements and the Perception of Motion and Stability New School for Social Research/Psychology	39,381
Mc Ilwain, James T	Cortical Control of Superior Colliculus Brown University/Neurosciences	74,013
Mc Kenna, Olivia C	Functional Anatomy of Accessory Optic System/Pretectum City College of New York/Biology	79,405
Noda, Hiroharu	Neuronal Basis of Visual Perception in Eye Movements University of California, Los Angeles/Brain Research Institute	69,570
Noda, Hiroharu	Neuronal Basis of Visual Perception in Eye Movements Indiana University, Bloomington/Visual Sciences	50,132
Peterson, Barry W	Properties of Premotor Neurons in Gaze Control System Rockefeller University/Neurophysiology	29,875
Peterson, Barry W	Properties of Premotor Neurons in Gaze Control System Northwestern University/Physiology	92,100
Pola, Jordan R	The Mechanism of Smooth Pursuit Eye Movements New York State College of Optometry/Basic Optometric Sciences	27,022
Robinson, David A	Study of Oculomotor Control System Johns Hopkins University/Ophthalmology	107,452
Schiller, Peter H	Studies of Interaction Between Eye Movement and Vision Massachusetts Institute of Technology/Psychology	137,685
Schlag-Rey, Madeleine L	Single-Unit Studies of Visuo-Oculomotor Mechanisms University of California, Los Angeles/Anatomy	97,142
Skavenski, Alexander A	Eye Movement and Mechanisms of Visual Localization Northeastern University/Psychology	46,823
Sparks, David L	Eye Movement Control: Role of Brain Stem Neurons University of Alabama, Birmingham/Physiology and Biophysics	66,714
Spencer, Robert F	Anatomy of Oculomotor Systems Virginia Commonwealth University/Anatomy	108,035
Stanton, Gregory B	Neuronal Connections of the Frontal Eye Fields Howard University/Anatomy	69,575
Takahashi, Ellen S	Specific Retinal Inputs to Central Visual Nuclei University of Alabama, Birmingham/Physiological Optics	33,025
Wallman, Joshua	Role of Accessory Optic System in Oculomotor Control City College of New York/Biology	72,251
Westheimer, Gerald	Oculomotor Control University of California, Berkeley/Physiology-Anatomy	120,829
White, Keith D	Spatial Orientation University of Florida/Psychology	49,902
Winterson, Barbara J	Sensory Neural Codes in Compensatory Eye Movements University of New England/Physiology	102,260
Yin, Tom C	Central Nervous System Control of Eye Movements University of Wisconsin, Madison/Neurophysiology	91,894

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Zee, David S	Oculomotor Disorders: Clinical and Experimental Study Johns Hopkins University/Ophthalmology	37,744
Total Active Research Grants in this Area in FY 1981: 38 **Total Research Grants in this Area Receiving FY 1981 Funds: 35** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**3,123,928**

5B. Vergence and Accommodation

Ciuffreda, Kenneth J	Accommodative Vergence and Accommodation in Amblyopia State College of Optometry/Basic Optometric Sciences	95,508
Ebenholtz, Sheldon M	Studies of Hysteresis Effects in Accommodation University of Wisconsin, Madison/Psychology	44,927
Hung, George K	Vergence Accommodation in Binocular Fixation Rutgers, The State University, New Brunswick/Electrical Engineering	50,864
Jones, Ronald	Clinical Implications of Vergence-Anomaly Ohio State University/Physiological Optics	0
Kertesz, Andrew E	Functional Aspects of Panum's Fusional Areas Northwestern University/Electrical Engineering and Computer Science	109,341
Mays, Lawrence E	Neural Mechanisms of Vergence Eye Movements University of Alabama, Birmingham/Physiological Optics	39,975
Reading, Rogers W	Fusional Stimuli and Corresponding Points Indiana University, Bloomington/Visual Sciences	43,705
Total Active Research Grants in this Area in FY 1981: 7 **Total Research Grants in this Area Receiving FY 1981 Funds: 6** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**384,320**

5C. Muscle Structure and Physiology

Breinin, Goodwin M	Fine Structure of Normal and Pathologic Ocular Muscle New York University/Ophthalmology	152,472
Chiarandini, Dante J	Physiology and Pharmacology of Extraocular Muscles New York University/Ophthalmology	118,645
Riggs, Lorrin A	Visual Significance of Eye Blinks Brown University/Psychology	45,846
Total Active Research Grants in this Area in FY 1981: 3 **Total Research Grants in this Area Receiving FY 1981 Funds: 3** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**316,963**
Total Active Research Grants in this Subprogram in FY 1981: 48 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 44** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**3,825,211**

6. Disorders

6A. Strabismus

Berman, Nancy E	Experimental Analysis of Strabismus Medical College of Pennsylvania/Physiology and Biochemistry	0
Chino, Yuzo M	Strabismus in Animals Illinois College of Optometry/Division of Basic Science	33,750
Collins, Carter C	Human Applications of Basic Eye Position Mechanics Institutes of Medical Sciences	95,045

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
CYNADER, MAX S	Etiology of Strabismus in Animals Dalhousie University/Psychology	0
FLYNN, JOHN T	Binocular Vision in Parents of Strabismic Subjects University of Miami/Ophthalmology	116,378
HELVESTON, EUGENE M	Visual Function and Academic Performance Indiana University--Purdue University, Indianapolis/Ophthalmology	83,055
KECK, MAX J	Intraocular Transfer of Aftereffects in Strabismus John Carroll University/Physics	31,922
MAY, JAMES G	Aspects of Binocular Vision in Strabismus Louisiana State University Medical Center, New Orleans/Ophthalmology	38,401
METZ, HENRY S	Quantitative Measurements for Strabismus Management University of Rochester/Ophthalmology	85,240
MINDEL, JOEL S	Depolarizing Nicotinic Antagonists and Eye Position Mount Sinai School of Medicine/Ophthalmology	78,823
NAKAYAMA, KEN	Three-Dimensional Aspects of Vision and Oculomotility Medical Research Institute of San Francisco	0
SCHOR, CLIFTON M	Abnormal Eye Movements in Strabismus and Amblyopia University of California, Berkeley/Optometry Clinic	0
SCOTT, ALAN B	Chemical Alteration of Extraocular Muscle Function Institutes of Medical Sciences/Smith-Kettlewell Institute of Visual Sciences	54,943
VON NOORDEN, GUNTER K	Clinical and Laboratory Studies of Amblyopia Baylor College of Medicine/Ophthalmology	0
WINTERKORN, JACQUELINE M	Visual Behavior Following Paralytic Strabismus Cornell University Medical Center/Anatomy	0
Total Active Research Grants in this Area in FY 1981: 15 **Total Research Grants in this Area Receiving FY 1981 Funds: 9** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**617,557**

6B. Motor Neuro-Ophthalmic Disorders

BAHILL, A TERRY	Clinical Recording of Saccades Carnegie-Mellon University/Electrical Engineering	0
FELDON, STEVEN E	Clinical Techniques Quantifying Graves' Ophthalmopathy University of Southern California/Ophthalmology	71,534
HOTSON, JOHN R	Supranuclear Control of Fixation Eye Movements Institute for Medical Research, Santa Clara County/Neurology	0
KRISS, JOSEPH P	Cell-Mediated Cytoxicity in Graves' Ophthalmopathy Stanford University/Radiology	85,100
MILLER, NEIL R	Clinical Investigations in Ocular Motility Disorders Johns Hopkins University/Ophthalmology	0
SAVINO, PETER J	Host Immunologic Response in Graves' Ophthalmopathy Wills Eye Hospital and Research Institute/Neuro-Ophthalmology Service	59,407

Strabismus, Amblyopia, and Visual Processing Research Grants Active in FY 1981, Subprogram/Area Listing—Continued

Principal Investigator	Project Title Institution/Department	FY 1981 Total Awarded
Scott, Alan B	Eyelid Movements and Forces Institutes of Medical Sciences/Smith-Kettlewell Institute of Visual Sciences	49,383
Total Active Research Grants in this Area in FY 1981: 7 **Total Research Grants in this Area Receiving FY 1981 Funds: 4** **Total FY 1981 Dollars Supporting Research Grants in this Area:**		**265,424**
Total Active Research Grants in this Subprogram in FY 1981: 22 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 13** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**882,981**

7. Optics and Refractive Errors, Including Myopia

Mc Kanna, James A	Ophthalmic Parameters in the Development of Myopia Vanderbilt University/Anatomy	117,828
Wali man, Joshua	Role of Vision in Etiology of Axial Myopia City College of New York/Biology	71,865
Wiesel, Torsten N	Experimental Myopia in Primates Harvard University/Neurobiology	70,866
Total Active Research Grants in this Subprogram in FY 1981: 3 **Total Research Grants in this Subprogram Receiving FY 1981 Funds: 3** **Total FY 1981 Dollars Supporting Research Grants in this Subprogram:**		**260,559**
Total Active Research Grants in this Program in FY 1981: 303 **Total Research Grants in this Program Receiving FY 1981 Funds: 249** **Total FY 1981 Dollars Supporting Research Grants in this Program:**		**21,347,982**

Strabismus, Amblyopia, and Visual Processing
Institutional National Research Service Awards
Active in FY 1981

Program Director Project Title Institution/Department City, State	Grant Number	Project Period	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
ALPERN, MATHEW Vision Research University of Michigan, Ann Arbor/Physiology Ann Arbor, Michigan	5 T32 EY07022-07	07/01/75- 06/30/85	$91,243	$5,044	$96,287
DAW, NIGEL W Visual Sciences Washington University/Anatomy and Neurobiology St. Louis, Missouri	5 T32 EY07057-03	07/01/79- 06/30/84	79,317	5,828	85,145
FENDER, DEREK H Visual System California Institute of Technology/Jorgensen Laboratory of Information Science Pasadena, California	5 T32 EY07011-05	07/01/75- 06/30/81	0	0	0
HURVICH, LEO M Training in Psychophysics and Physiology of Vision University of Pennsylvania/Psychology Philadelphia, Pennsylvania	2 T32 EY07035-06	07/01/76- 08/31/86	80,481	5,027	85,508
KALINA, ROBERT E Vision Research--Multidisciplinary University of Washington/Ophthalmology Seattle, Washington	5 T32 EY07013-07	07/01/75- 06/30/85	45,300	3,259	48,559
KAUFMAN, LLOYD Vision Research New York University/Psychology New York, New York	5 T32 EY07003-05	07/01/75- 08/31/81	0	0	0
REINECKE, ROBERT D Academic Ophthalmology Albany Medical College/Ophthalmology Albany, New York	5 T32 EY07037-05	07/01/76- 06/30/81	0	0	0
RIGGS, LORRIN A Visual Psychophysiology Brown University/Psychology Providence, Rhode Island	5 T32 EY07029-06	07/01/76- 06/30/84	11,508	909	12,417
SCOTT, ALAN B Eye Movement Disorders Medical Research Institute of San Francisco San Francisco, California	5 T32 EY07027-05	07/01/75- 06/30/81	0	0	0
SHERMAN, S MURRAY Sensory Transduction and Neural Processing in Vision State University New York, Stony Brook/Anatomical Sciences Stony Brook, New York	5 T32 EY07039-05	07/01/76- 12/31/81	0	0	0
SPERLING, HARRY G Physiology and Neurochemistry of Vision University of Texas Health Sciences Center, Houston/Sensory Sciences Center Houston, Texas	5 T32 EY07024-07	07/01/75- 06/30/85	85,072	6,402	91,474
TELLER, DAVIDA Y Visual Sciences University of Washington/Psychology Seattle, Washington	3 T32 EY07031-05S1	07/01/76- 06/30/82	17,252	1,380	18,632

Strabismus, Amblyopia, and Visual Processing
Institutional National Research Service Awards
Active in FY 1981—Continued

Program Director Project Title Institution/Department City, State	Grant Number	Project Period	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
WIESEL, TORSTEN N Basic Neurobiological Sciences Harvard University/Neurobiology Boston, Massachusetts	5 T32 EY07042–05	07/01/77– 06/30/82	50,083	3,405	53,488
WILSON, GRAEME S Visual Sciences University of Alabama, Birmingham/Physiological Optics Birmingham, Alabama	3 T32 EY07033–05S1	07/01/76– 06/30/82	16,965	1,234	18,199
Total Active Institutional NRSAs in this Program in FY 1981: 14 **Total Institutional NRSAs in this Program Receiving FY 1981 Funds: 9** **Total FY 1981 Dollars Supporting Institutional NRSAs in this Program:**			**477,221**	**32,488**	**509,709**

Strabismus, Amblyopia, and Visual Processing Individual National Research Service Awards Active in FY 1981

Name of Fellow, Degree Sponsor Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Stipends Awarded	FY 1981 Other Allowances Awarded	FY 1981 Total Awarded
AIRHART, MARK J, PhD Norden, Jeanette Kinetics of Retinal Terminal Synaptogenesis Vanderbilt University/Anatomy Nashville, Tennessee	1 F32 EY05567-01	06/01/81- 05/31/84	1(A)	$13,380	$5,000	$18,380
ARCHER, STEVEN M, MD Dubin, Mark W Role of Action Potentials in Visual System Maturation University of Colorado, Boulder/Molecular, Cellular & Developmental Biology Boulder, Colorado	5 F32 EY05442-02	09/01/80- 08/31/81	1(A)	0	0	0
ARDITI, ARIES R, PhD Movshon, J Anthony Binocular Combination in Striate Cortex New York University/Psychology New York, New York	5 F32 EY05445-02	07/01/81- 06/30/82	2(B)	14,040	5,000	19,040
BAKER, CURTIS L, PhD Barlow, Horace B Visual Mechanisms of Relative Motion Perception University of Cambridge/Physiology Cambridge, United Kingdom	1 F32 EY05485-01	09/01/80- 05/06/84	2(C)	0	0	0
BERSON, DAVID M, PhD Mc Ilwain, James T Visual Integration in the Superior Colliculus Brown University/Neurosciences Providence, Rhode Island	5 F32 EY05425-02	08/15/81- 08/14/83	2(B)	14,040	5,000	19,040
COOPER, MICHAEL L, PhD Rakic, Pasko T Ontogeny and Plasticity of Primate Superior Colliculus Yale University/Neuroanatomy New Haven, Connecticut	5 F32 EY05372-03	08/01/81- 07/31/82	1(B)	14,736	5,000	19,736
CRABTREE, JOHN W, PhD Chow, Kao L Altered CNS Activity and Visuocortical Development Stanford University/Neurology Stanford, California	5 F32 EY05382-02	10/03/80- 10/02/81	1(A)	0	0	0
CUSICK, CATHERINE G, PhD Kaas, Jon H Interconnections of Areas of Primate Visual Cortex Vanderbilt University/Psychology Nashville, Tennessee	5 F32 EY05380-02	12/03/80- 12/02/81	2(B)	14,040	5,000	19,040
DAVIS, ELIZABETH E, PhD Movshon, J Anthony Mechanisms of Motion Analysis by Visual Neurones New York University/Psychology New York, New York	5 F32 EY05350-02	05/14/81- 05/13/82	2(C)	14,040	5,000	19,040
DAWIS, STEVAN M, PhD Shapley, Robert M Light Adaptation in Retinal Ganglion Cells Rockefeller University/Biophysics New York, New York	5 F32 EY05483-02	09/15/81- 09/14/82	2(A)	14,040	5,000	19,040

Strabismus, Amblyopia, and Visual Processing
Individual National Research Service Awards
Active in FY 1981—Continued

Name of Fellow, Degree Sponsor Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Stipends Awarded	FY 1981 Other Allowances Awarded	FY 1981 Total Awarded
EDWARDS, MICHAEL A, PhD Schneider, Gerald E Normal and Perturbed Development of Optic Arborizations Massachusetts Institute of Technology/Psychology Cambridge, Massachusetts	5 F32 EY05406-02	05/01/81- 04/30/82	1(B)	14,040	5,000	19,040
FELSTEN, GARY, PhD Benevento, Louis A Extrageniculate Projections to Primary Visual Cortex University of Illinois Medical Center/Anatomy Chicago, Illinois	5 F32 EY05504-02	09/15/81- 09/14/82	2(B)	14,736	5,000	19,736
FITZPATRICK, DAVID, PhD Lund, Jennifer S Intrinsic Neuron Organization in Primate Visual Cortex Medical University of South Carolina/Ophthalmology Charleston, South Carolina	1 F32 EY05543-01	04/01/81- 05/31/84	2(A)	13,380	5,000	18,380
FRENCH, KATHLEEN A, PhD Stuart, Ann E Processing of Information from Barnacles' Multiple Eyes University of North Carolina, Chapel Hill/Physiology Chapel Hill, North Carolina	5 F32 EY05484-02	09/01/81- 08/31/83	2(B)	14,040	5,000	19,040
FRIEDLANDER, DAVID R, PhD Crain, Stanley M Retinotectal Specificity in Fetal Mouse Co-Cultures Yeshiva University/Neuroscience New York, New York	5 F32 EY05471-02	04/01/81- 03/31/82	1(A)	14,040	5,000	19,040
FRISHMAN, LAURA J, PhD Enroth-Cugell, C Quantitative Analysis of Retinal Velocity Tuning Northwestern University/Biomedical Engineering Center Evanston, Illinois	5 F32 EY05297-05	03/01/81- 02/28/82	2(B)	14,736	5,000	19,736
GEISERT, ELDON E, JR, PhD Spear, Peter D A Study of Monocular Deprivation University of Wisconsin, Madison/Psychology Madison, Wisconsin	5 F32 EY05259-03	06/24/80- 06/24/81	1(C)	0	0	0
HAMOS, JAMES E, PhD Sterling, Peter Visual Cortex Microcircuitry: Glycine and GABA Neurons University of Pennsylvania/Anatomy Philadelphia, Pennsylvania	5 F32 EY05397-02	09/01/80- 08/31/81	2(A)	0	0	0
HERDMAN, SUSAN J, PhD Palmer, Larry Recovery of Visual Responses in Primates University of Pennsylvania/Anatomy Philadelphia, Pennsylvania	5 F32 EY05379-02	11/01/80- 10/31/81	2(C)	16,236	5,000	21,236
JONES, KIM R, PhD Spear, Peter D Reorganization of the Neonatal Visual System University of Wisconsin, Madison/Psychology Madison, Wisconsin	5 F32 EY05449-02	04/01/81- 03/31/83	1(B)	14,040	5,000	19,040

Strabismus, Amblyopia, and Visual Processing
Individual National Research Service Awards
Active in FY 1981—Continued

Name of Fellow, Degree Sponsor Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Stipends Awarded	FY 1981 Other Allowances Awarded	FY 1981 Total Awarded
KEYS, WILLIAM, PhD Zee, David S Cortical and Subcortical Vision in Oculomotor Disorders Johns Hopkins University/Neurology Baltimore, Maryland	1 F32 EY05577-01	10/01/81- 10/31/83	6(A)	15,468	5,000	20,468
KUYK, THOMAS K, PhD Norton, Thomas T Microelectrode Study of the Extrastriate Pathway University of Alabama, Birmingham/Physiological Optics Birmingham, Alabama	5 F32 EY05473-02	08/01/81- 07/31/83	2(B)	14,040	5,000	19,040
LEGUIRE, LAWRENCE E, PhD Blake, Randolph Psychophysical Investigators into Strabismus Northwestern University/Psychology Evanston, Illinois	5 F32 EY05436-02	05/16/81- 05/15/82	3(A)	14,040	5,000	19,040
LIEBERMAN, HARRIS R, PhD Richards, Whitman A Basic and Applied Visual Psychophysical Research Massachusetts Institute of Technology/Psychology Cambridge, Massachusetts	5 F32 EY05217-03	02/01/80- 01/31/81	1(C)	0	0	0
MC LAREN, JAY W, PhD Lynch, James C Parietal-Brainstem Interactions and Eye Movement Mayo Foundation/Physiology Rochester, Minnesota	5 F32 EY05318-03	08/01/80- 07/31/81	5(A)	0	0	0
MC LOON, LINDA K, PhD Lund, Raymond D Antigenic Changes in the Developing Visual System Medical University of South Carolina/Anatomy Charleston, South Carolina	5 F32 EY05394-02	06/01/81- 05/31/82	1(B)	14,040	5,000	19,040
NIELSEN, KENNETH R, PhD MD Poggio, Tomaso A Computational Approach to Vision Massachusetts Institute of Technology/Psychology Cambridge, Massachusetts	1 F32 EY05584-01	01/01/82- 01/31/84	2	13,380	5,000	18,380
OGREN, MARILEE P, PhD Rakic, Pasko T The Ontogenesis of Primate Pulvinar and Related Cortex Yale University/Neuroanatomy New Haven, Connecticut	5 F32 EY05348-02	08/01/80- 07/31/81	1(B)	0	0	0
OLSON, CARL R, PhD Graybiel, A M Anatomical Analysis of Oculomotor Pathways in Animals Massachusetts Institute of Technology/Psychology Cambridge, Massachusetts	5 F32 EY05316-02	10/21/80- 10/20/81	2(B)	14,040	5,000	19,040
PRICHARD, ROBERT G, PhD Gordon-Lickey, Marvin The Cellular Basis of a Neural Circadian Oscillator University of Oregon/Psychology Eugene, Oregon	5 F32 EY05383-02	07/01/81- 06/30/82	2(B)	14,040	5,000	19,040

Strabismus, Amblyopia, and Visual Processing
Individual National Research Service Awards
Active in FY 1981—Continued

Name of Fellow, Degree Sponsor Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Stipends Awarded	FY 1981 Other Allowances Awarded	FY 1981 Total Awarded
RACZKOWSKI, DENIS, PhD Rosenquist, Alan C Extrageniculate Vision in Animals University of Pennsylvania/Anatomy Philadelphia, Pennsylvania	5 F32 EY05342-04	12/01/80-11/30/81	2(B)	14,736	5,000	19,736
RAPAPORT, DAVID H, PhD Stone, Jonathan Morphology Physiology and Projections of Monkey Retina University of New South Wales/School of Anatomy Kensington, Australia	5 F32 EY05433-02	09/02/81-09/01/82	1(B)	14,040	5,000	19,040
RUDOLPH, STEVEN H, MD Cohen, Bernard Eye-Head Coordination in Neurologic Disease Mount Sinai School of Medicine/Neurology New York, New York	1 F32 EY05515-01	11/01/80-10/21/82	6(B)	0	0	0
RYUGO, REBECCA M, PhD Wessells Norman K Control of Retinal Axon Growth by Optic Lobe Ligands Stanford University/Biological Sciences Stanford, California	7 F32 EY05377-02	10/15/80-10/14/81	1(B)	14,040	5,000	19,040
SAGAR, STEPHEN M, MD Martin, Joseph B Inhibition in the Mammalian Visual System Massachusetts General Hospital/Neurology Boston, Massachusetts	5 F32 EY05270-03	07/01/80-06/30/81	1(A)	0	0	0
SCHUMER, ROBERT A, PhD Movshon, J Anthony Binocular Mechanisms in the Visual Cortex New York University/Psychology New York, New York	1 F32 EY05511-01	01/01/81-12/31/83	2(B)	0	0	0
SHAW, CHRISTOPHER, PhD Cynader, Max Mechanisms of Neural Plasticity in Animal Visual Cortex Dalhousie University/Psychology Halifax, Canada	5 F32 EY05393-02	10/01/81-09/30/82	1(B)	14,040	5,000	19,040
SHAW, MARJORIE D, PhD Baker, Robert Superior Colliculus Projections to Oculomotor Nucleus New York University/Physiology and Biophysics New York, New York	5 F32 EY05404-02	02/01/81-01/31/82	5(A)	14,040	5,000	19,040
STEVENSON, JAMES A, PhD Lund, Raymond D Plasticity Among Tectal Efferents Medical University of South Carolina/Anatomy Charleston, South Carolina	5 F32 EY05381-03	10/01/81-09/30/82	1(B)	4,912	2,500	7,412
TONG, LILLIAN, PhD Spear, Peter D Effects of Visual Deprivation on LS Cortex University of Wisconsin, Madison/Psychology Madison, Wisconsin	5 F32 EY05256-03	07/01/80-06/30/81	1(B)	0	0	0

Strabismus, Amblyopia, and Visual Processing
Individual National Research Service Awards
Active in FY 1981—Continued

Name of Fellow, Degree Sponsor Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Stipends Awarded	FY 1981 Other Allowances Awarded	FY 1981 Total Awarded
WILLIAMS, MARY C, PhD Breitmeyer, Bruno G Fast and Slow Channels and Metacontrast University of Houston/Psychology Houston, Texas	1 F32 EY05532-01	12/01/80– 12/31/81	2(C)	0	0	0
Total Active Individual NRSAs in this Program in FY 1981: 41 **Total Individual NRSAs in this Program Receiving FY 1981 Funds: 28** **Total FY 1981 Dollars Supporting Individual NRSAs in this Program:**				**388,420**	**137,500**	**525,920**

Strabismus, Amblyopia, and Visual Processing Research Career Development Awards Active in FY 1981

Awardee Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
BLAKE, R RANDOLPH Spatial Vision in Normal and Visually Deprived Animals Northwestern University/Psychology Evanston, Illinois	5 K04 EY00106-04	09/01/78- 08/31/83	1(C)	$34,530	$2,762	$37,292
BLANKS, ROBERT H Eye Movement--Physiological/Anatomical Organization University of California, Irvine/Anatomy Irvine, California	5 K04 EY00160-03	07/01/79- 06/30/84	5(A)	38,250	3,060	41,310
CASAGRANDE, VIVIEN A Principles of Visual System Development Vanderbilt University/Anatomy Nashville, Tennessee	1 K04 EY00223-01	07/01/81- 06/30/86	1(B)	35,937	2,875	38,812
EMERSON, ROBERT C Image Movement: Neural Processing Mechanisms University of Rochester/Center for Visual Science Rochester, New York	5 K04 EY00081-05	09/30/77- 09/29/82	2(B)	33,087	2,647	35,734
FREEMAN, RALPH D Visual Development and Deprivation in Humans and Animals University of California, Berkeley/Physiological Optics Berkeley, California	5 K04 EY00092-05	09/30/77- 09/29/82	1(B)	38,100	3,048	41,148
GROBSTEIN, PAUL Development of Connectivity in Anuran Visual Systems University of Chicago/Pharmacological and Physiological Sciences Chicago, Illinois	5 K04 EY00057-05	09/30/77- 09/29/82	1(B)	36,300	2,904	39,204
LE VAY, SIMON Development and Plasticity of the Visual System Harvard University/Neurobiology Boston, Massachusetts	5 K04 EY00090-05	09/30/77- 09/29/82	1(B)	36,120	2,890	39,010
MOVSHON, J ANTHONY Quantitative Studies of the Central Visual System New York University/Psychology New York, New York	5 K04 EY00187-02	08/01/80- 07/31/85	2(B)	36,000	2,880	38,880
PALMER, LARRY A Functional Connectivity in Visual Cortex University of Pennsylvania/Anatomy Philadelphia, Pennsylvania	5 K04 EY00060-05	09/30/77- 09/29/82	2(B)	37,110	2,969	40,079
PETERSON, BARRY W Properties of Premotor Neurons in Gaze Control System Rockefeller University/Neurophysiology New York, New York	5 K04 EY00100-04	01/01/78- 05/31/81	5(A)	14,763	1,181	15,944
PETERSON, BARRY W Properties of Premotor Neurons in Gaze Control System Northwestern University/Physiology Chicago, Illinois	7 K04 EY00231-04	06/01/81- 12/31/82	5(A)	19,855	1,588	21,443
SHAPLEY, ROBERT M Spatial Interactions in Visual Neurons Rockefeller University/Biophysics New York, New York	5 K04 EY00087-05	09/30/77- 09/29/82	2(B)	36,600	2,928	39,528

Strabismus, Amblyopia, and Visual Processing Research Career Development Awards Active in FY 1981—Continued

Awardee Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
SHARMA, SANSAR C The Formation of Visual Neuronal Connections New York Medical College/Ophthalmology Valhalla, New York	5 K04 EY00101-04	06/01/78- 05/31/83	1(B)	36,034	2,883	38,917
SPEAR, PETER D Visual Integration in the Brain University of Wisconsin, Madison/Psychology Madison, Wisconsin	5 K04 EY00089-05	09/30/77- 09/29/82	2(B)	36,090	2,887	38,977
STERLING, PETER Microcircuitry of the Visual System University of Pennsylvania/Anatomy Philadelphia, Pennsylvania	5 K04 EY00080-05	09/30/77- 09/29/82	2(B)	37,195	2,976	40,171
WILSON, HUGH R Significance of Spatial Inhomogeneity and Hysteresis University of Chicago/Biophysics and Theoretical Biology Chicago, Illinois	5 K04 EY00062-04	01/01/78- 12/31/82	2(C)	36,300	2,904	39,204
ZEE, DAVID S Mechanisms of Normal and Abnormal Ocular Motor Control Johns Hopkins University/Ophthalmology Baltimore, Maryland	5 K04 EY00158-02	09/30/80- 09/29/85	5(A)	35,925	2,874	38,799
Total Active Research Career Development Awards in this Program in FY 1981: 16 **Total Research Career Development Awards in this Program Receiving FY 1981 Funds: 16** **Total FY 1981 Dollars Supporting Research Career Development Awards in this Program:**				**578,196**	**46,256**	**624,452**

Strabismus, Amblyopia, and Visual Processing Academic Investigator Awards Active in FY 1981

Awardee Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program (Area)	FY 1981 Direct Costs Awarded
BONDI, ARDITH Y Electrophysiology of Oculomotor Muscles New York University/Ophthalmology New York, New York	5 K07 EY00165-03	09/30/79- 09/29/82	5(C)	$30,068
HIRSCH, JOY Pattern Recognition Mechanisms in Amblyopia Yale University/Ophthalmology and Visual Science New Haven, Connecticut	5 K07 EY00167-02	12/01/79- 11/30/82	3(A)	32,166
JOHNSON, CHRIS A Psychophysical Examination of the Visual Fields University of California, Davis/Ophthalmology Davis, California	5 K07 EY00095-03	01/01/78- 12/31/80	2(C)	0
KANEKO, CHRIS R Premotoneuronal Control of Fast Eye Movements University of Washington/Physiology and Biophysics Seattle, Washington	5 K07 EY00096-03	09/01/78- 11/30/81	5(A)	0
KAPLAN, EHUD Effect of Cortical Feedback on the LGN Rockefeller University/Biophysics New York, New York	5 K07 EY00108-03	01/01/78- 12/31/80	2(B)	0
RAPHAN, THEODORE Central Mechanisms for Suppression of Nystagmus Mount Sinai School of Medicine/Neurology New York, New York	5 K07 EY00157-03	07/01/79- 06/30/82	5(A)	35,370

Total Active Academic Investigator Awards in this Program in FY 1981: 6
Total Academic Investigator Awards in this Program Receiving FY 1981 Funds: 3
Total FY 1981 Dollars Supporting Academic Investigator Awards in this Program: 97,604

Strabismus, Amblyopia, and Visual Processing
NEI Intramural Research Projects
Active in FY 1981

Principal Investigator Project Title	Project Number	Sub-program (Area)	FY 1981 Professional Salaries	FY 1981 Other Direct Costs	FY 1981 Total Direct Costs
ALBANO, JOANNE E Visual and Oculomotor Functions of the Primate Superior Colliculus	Z01 EY00055-03 LSR	5(A)	$13,001	$66,040	$79,041
COGAN, DAVID G Contributions to Ophthalmic Pathology and Systemic Disease	Z01 EY00086-03 CB	6(B)	13,780	35,376	49,156
COGAN, DAVID G Parametric Studies of the Pupillary Functions	Z01 EY00087-03 CB	6(B)	8,268	57,628	65,896
COGAN, DAVID G The Eye and Metabolic Disease	Z01 EY00089-03 CB	3(B)	11,944	46,562	58,506
COGAN, DAVID G Oculomotor Disorders in Human Subjects	Z01 EY00117-01 CB	6(B)	8,268	48,452	56,720
DE MONASTERIO, FRANCISCO M Physiological Studies of the Visual System of Primates	Z01 EY00065-04 CB	2(B)	19,637	39,870	59,507
GOLDBERG, MICHAEL E Visual Processing in Brains following Cortical Ablation	Z01 EY00047-03 LSR	2(B)	4,631	42,722	47,353
GOLDBERG, MICHAEL E Cerebral Cortical Mechanisms for Eye Movements and Visual Attention	Z01 EY00049-03 LSR	5(A)	41,681	48,060	89,741
JAFFE, MYLES Psychophysics in the Management of Chiasmatic Lesions	Z01 EY00123-01 CB	3(B)	28,256	24,852	53,108
MILES, FREDERICK A Adaptive Regulation in the Vestibulo-ocular System	Z01 EY00112-01 LSR	5(A)	23,931	32,047	55,978
MILES, FREDERICK A The Neural Coupling between Vergence Eye Movements and Accomodation	Z01 EY00113-01 LSR	5(B)	15,121	32,047	47,168
OPTICAN, LANCE M Quantitative Modeling of Sensorimotor Systems	Z01 EY00104-02 LSR	5(A)	24,390	32,047	56,437
OPTICAN, LANCE M Real-time Behavioral Control and Data Acquisition	Z01 EY00110-01 LSR	2(B)	9,077	59,257	68,334
RICHMOND, BARRY J Visual Processing in Inferior Temporal Cortex	Z01 EY00103-02 LSR	2(B)	27,562	32,047	59,609
ROBINSON, DAVID LEE Visuomotor Properties in the Thalamus and Extrastriate Cortex	Z01 EY00045-03 LSR	5(A)	37,602	54,335	91,937
SCHEIN, STANLEY J Anatomical Studies of the Visual System of Primates	Z01 EY00122-01 CB	2(B)	21,892	25,028	46,920
WURTZ, ROBERT H Role of Substantia Nigra in the Initiation of Eye Movements	Z01 EY00102-02 LSR	5(A)	16,537	64,751	81,288
WURTZ, ROBERT H Visual Motion Processing in the Primate Brain	Z01 EY00109-01 LSR	2(B)	11,025	54,753	65,778
Total Intramural Research Projects in this Program Receiving FY 1981 Funds: 18 **Total FY 1981 Dollars Supporting Intramural Research Projects in this Program:**			**336,603**	**795,874**	**1,132,477**

Visual Impairment and Its Rehabilitation Research Grants Active in FY 1981, Alphabetical Listing

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	Sub-program	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
COLLINS, CARTER C Tactile Mobility Aid Evaluation Medical Research Institute of San Francisco San Francisco, California	2 R01 EY00686-08	05/01/79- 04/30/81	2	$0	$0	$0
DAVIDSON, PHILIP W Rehabilitation of Haptic Perception in the Blind University of Rochester/Pediatrics Rochester, New York	5 R01 EY01790-05	12/01/79- 11/30/82	2	25,693	15,837	41,530
EPSTEIN, LUDWIG I A Reading Aid for Patients with Macular Blindness Virginia Commonwealth University/Biophysics Richmond, Virginia	5 R01 EY03200-02	12/01/79- 03/31/82	1	23,238	10,559	33,797
LEGGE, GORDON E Matrix Displays in Low Vision Reading Aids University of Minnesota, Minneapolis-St Paul/Psychology Minneapolis, Minnesota	5 R01 EY02934-02	09/01/79- 11/30/81	1	0	0	0
MILES, LAUGHTON E Chronobiological Disorders in Blind People Institute for Medical Research Santa Clara County/Psychiatry and Behavioral Sciences San Jose, California	5 R01 EY02614-03	08/01/78- 07/31/81	2	0	0	0
ROWELL, DEREK Mobility Enhancement for the Blind Massachusetts Institute of Technology/Mechanical Engineering Cambridge, Massachusetts	5 R01 EY02463-03	09/01/79- 08/31/82	2	62,035	29,051	91,086
Total Active Research Grants in this Program in FY 1981: 6 **Total Research Grants in this Program Receiving FY 1981 Funds: 3** **Total FY 1981 Dollars Supporting Research Grants in this Program:**				**110,966**	**55,447**	**166,413**

Multiprogram
Research Grants Active in FY 1981, Alphabetical Listing

Principal Investigator Project Title Institution/Department City, State	Grant Number	Project Period	FY 1981 Direct Costs Awarded	FY 1981 Indirect Costs Awarded	FY 1981 Total Awarded
DUANE, THOMAS D Council Program Planning Committee U.S. Public Health Service Public Advisory Groups/ Ophthalmology Bethesda, Maryland	3 R09 EY00525-04S4	06/01/79- 10/31/81	$100,000	$0	$100,000
HENKIND, PAUL Young Scientist Support for Vision Studies Association for Research in Vision and Ophthalmology/ Ophthalmology New Rochelle, New York	5 R13 EY02143-05	12/01/79- 12/31/81	10,492	0	10,492
Total Active Multiprogram Research Grants in FY 1981: 2 **Total Multiprogram Research Grants Receiving FY 1981 Funds: 2** **Total FY 1981 Dollars Supporting Multiprogram Research Grants:**			**110,492**	**0**	**110,492**

Multiprogram Research Contracts Active in FY 1981

Principal Investigator Institution/Department City, State	Contract Number	Project Period	FY 1981 Total Awarded
TARIZZO, MARIO L World Health Organization Program for The Prevention of Blindness World Health Organization Geneva, Switzerland	N01 EY92103	09/30/79– 09/29/82	$0
Visual Acuity Impairment Survey Pilot Study:			
CAMERON, J DOUGLAS University of Minnesota/Ophthalmology Minneapolis, Minnesota	N01 EY12105	06/01/81– 12/31/82	51,030
CONNETT, JOHN E University of Minnesota/Biometry (Coordinating Center) Minneapolis, Minnesota	N01 EY12102	06/01/81– 03/31/83	145,453
FRANK, ROBERT N Wayne State University/Ophthalmology Detroit, Michigan	N01 EY12103	06/01/81– 12/31/82	59,186
LOEWENSTEIN, JOHN I University Hospital Boston, Massachusetts	N01 EY12104	06/01/81– 12/31/82	47,058
RICE, DOROTHY P National Center for Health Statistics (Interagency Agreement) Hyattsville, Maryland	Y01 EY10002	06/01/81– 12/31/82	177,343
Total Active Multiprogram Contracts in FY 1981: 6 **Total Multiprogram Contracts Receiving FY 1981 Funds: 5** **Total FY 1981 Dollars Supporting Multiprogram Contracts:**			**480,070**

RESEARCH SPONSORED BY OTHER ORGANIZATIONS

Projects of Direct Relevance to the National Eye Institute Program

I. RETINAL AND CHOROIDAL DISEASES

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
National Institutes of Health (Exclusive of NEI), Extramural		
National Cancer Institute	ATKINS, H L Melanoma Detection with Radiopharmaceuticals Brookhaven National Laboratory Upton, New York	$33,093
	KLEINSCHUSTER, S J Immunoprophylaxis of "Cancer Eye" in Cattle Utah State University Logan, Utah	87,189
	KNOWLES, D M Extra-Nodal Lymphomas: Immunology and Ultrastructure Columbia University New York, New York	5,289
	MILLER, D R Children's Cancer Study Group Memorial Hospital for Cancer and Allied Diseases New York, New York	3,277
	NEWTON, W A Children's Cancer Study Group Children's Hospital Columbus, Ohio	9,995
	PIOMELLI, S Children's Cancer Study Group Columbia University New York, New York	4,622
	STEINBERG, M S Chemistry and Measurement of Intercellular Adhesion Princeton University Princeton, New Jersey	159,942
Total Number of Projects for Organization: 7 **Total Known Dollars:**		**303,407**
National Heart, Lung, and Blood Institute	GOLDBERG, M F Comprehensive Sickle Cell Disease Center University of Illinois Chicago, Illinois	200,250
	NADEL, A J Sickle Cell Anemia and Other Hemoglobinopathies Albert Einstein College of Medicine Bronx, New York	40,865
	PATZ, A Role of Systemic Hypertension in Diabetic Retinopathy Johns Hopkins University Baltimore, Maryland	241,551

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	SCHADE, S G Comprehensive Sickle Cell Disease Center University of Illinois Chicago, Illinois	200,250
	ZWEIFACH, B W Microcirculation in Patients with Diabetes Mellitus University of California La Jolla, California	17,995
Total Number of Projects for Organization: 5 **Total Known Dollars:**		**700,911**
National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases		
	ANDERSON, P Causes of Diabetes and Obesity in Oklahoma Indians University of Oklahoma Oklahoma City, Oklahoma	15,783
	BITENSKY, M W Interaction of Proteins and Cyclic Nucleotide Regulation Yale University New Haven, Connecticut	66,795
	BRADLEY, R F Diabetes Research and Training Center Joslin Diabetes Foundation, Inc. Boston, Massachusetts	157,206
	BROWN, D M Islet Transplantation and Diabetic Vascular Disease University of Minnesota Minneapolis, Minnesota	14,361
	CERAMI, A Biochemical Basis of the Complications of Diabetes Rockefeller University New York, New York	35,469
	FORSHAM, P H Pancreatic Islet Function in Diabetes University of California San Francisco, California	8,723
	KRAMER, J W A New Animal Model of Inherited Diabetes Mellitus Washington State University Pullman, Washington	13,028
	LERNER, A B Vitiligo Center Grant Yale University New Haven, Connecticut	185,747
	LIU, R S Isomers of Vitamin A, Carotene, and Visual Pigment University of Hawaii System Honolulu, Hawaii	83,161
	MARTIN, J B Peptides and Brain Function Harvard University Boston, Massachusetts	30,305
	ORLOFF, M J Studies of Pancreas Transplantation in Diabetes University of California La Jolla, California	16,259

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	PATZ, A Development of Microangiopathy in Juvenile Diabetes Johns Hopkins University Baltimore, Maryland	45,493
	REFETOFF, S Regulation and Mechanism of Hormone Action University of Chicago Chicago, Illinois	31,070
	SCHARP, D W Diabetic Complication: Effect of Islet Transplantation Washington University St. Louis, Missouri	22,333
	TANFORD, C Protein Interactions and Biological Function Duke University Durham, North Carolina	66,145
	YAMADA, T Chemistry and Biology of Gut Somatostatin University of California Los Angeles, California	5,541
Total Number of Projects for Organization: 16 **Total Known Dollars:**		**797,419**
National Institute of Child Health and Human Development	MOSCONA, A A The Cell Surface in Cell Recognition and Differentiation University of Chicago Chicago, Illinois	216,400
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**216,400**
National Institute of Dental Research	SZABO, G Ultrastructure and Physiology of Oral Mucosa Harvard University Boston, Massachusetts	30,972
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**30,972**
National Institute of General Medical Sciences	BORGIA, P T NIGMS Shared Instrumentation Program Southern Illinois University Carbondale, Illinois	2,765
	COWAN, N J Structure of Tubulin and Rhodopsin mRNA Princeton University Princeton, New Jersey	7,868
	GLASER, L Membrane Properties, Interactions During Differentiation Washington University St. Louis, Missouri	4,250
	MCCLAY, D R Cell Surface Molecules in Embryonic Cell Adhesion Duke University Durham, North Carolina	51,180
	MILLER, K W Membrane Expansion and General Anesthesia Massachusetts General Hospital Boston, Massachusetts	3,561

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	STREISINGER, G Genetic Studies with Zebra Fish (*Brachydanio rerio*) Oregon State Higher Education System Eugene, Oregon	155,373
	TEPHLY, T R Studies on the Ocular Toxicity of Methanol (Rat, Monkey) University of Iowa Iowa City, Iowa	10,965
	THOMAS, D D Biophysical Studies of Membrane Molecular Dynamics University of Minnesota Minneapolis, Minnesota	30,000
	WILKES, S Retinal Detachment in Rochester, Minnesota Mayo Foundation Rochester, Minnesota	21,852
	WITKOP, C J Oculocutaneous Pigment Defects University of Minnesota Minneapolis, Minnesota	5,173
Total Number of Projects for Organization: 10 **Total Known Dollars:**		**292,987**
National Institute of Neurological and Communicative Disorders and Stroke	CUTLER, R W Mechanisms of Neurotransmitter Release Stanford University Stanford, California	83,111
	EYZAGUIRRE, C E Transduction Mechanism in Photoreceptors (Barnacles, Gastropods) University of Utah Salt Lake City, Utah	95,613
	FISHMAN, H M Stochastic and Kinetic Processes in Membrane Function University of Texas Galveston, Texas	29,248
Total Number of Projects for Organization: 3 **Total Known Dollars:**		**207,972**
Total Number of Projects, National Institutes of Health (Exclusive of NEI), Extramural: 43 **Total Known Dollars:**		**2,550,068**

National Institutes of Health (Exclusive of NEI), Intramural

National Cancer Institute	RAPP, H J Immunotherapy of Primary Autochthonous Cancer National Cancer Institute Bethesda, Maryland	67,500
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**67,500**
National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases	ADAMS, R G The Physics and Chemistry of the Visual Pigments National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases Bethesda, Maryland	61,000

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	HAGINS, W A The Physics and Chemistry of Photoreception National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases Bethesda, Maryland	307,000
	SHARPLESS, N E The Influence of Molecular Structure in Chemical and Biological Properties National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases Bethesda, Maryland	61,000
Total Number of Projects for Organization: 3 **Total Known Dollars:**		**429,000**
National Institute of Neurological and Communicative Disorders and Stroke	KOLB, H Neural Connections in the Retina National Institute of Neurological and Communicative Disorders and Stroke Bethesda, Maryland	6,160
	LASANSKY, A Synaptic Contacts of Retinal Neurons National Institute of Neurological and Communicative Disorders and Stroke Bethesda, Maryland	123,200
	PASSONNEAU, J V Metabolic Profiles in Normal and Diseased Retina National Institute of Neurological and Communicative Disorders and Stroke Bethesda, Maryland	92,400
	SCHNAPF, J Ionic Mechanisms of Phototransduction in Rods of the Vertebrate Retina National Institute of Neurological and Communicative Disorders and Stroke Bethesda, Maryland	12,320
	WAGNER, H G A Study of the Complex Receptive Field Properties of Turtle Retinal Neurons National Institute of Neurological and Communicative Disorders and Stroke Bethesda, Maryland	18,480
Total Number of Projects for Organization: 5 **Total Known Dollars:**		**252,560**
Total Number of Projects, National Institutes of Health (Exclusive of NEI), Intramural: 9 **Total Known Dollars:**		**749,060**

Department of Health And Human Services (Exclusive of NIH)

Alcohol, Drug Abuse, and Mental Health Administration	IUVONE, P M Modulation of Tyrosine Hydroxylase Activity in Retina National Institute of Mental Health, Saint Elizabeth's Hospital Washington, D C	*
Total Number of Projects for Organization: 1 **Total Known Dollars:**		
Bureau of Radiological Health	SYKES, S Light-Induced Retinal Damage: IV. The Role of Rhodopsin Bureau of Radiological Health Rockville, Maryland	*

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	SYKES, S The Effect of Light on Retinal Degeneration Induced by Avitaminosis E Bureau of Radiological Health Rockville, Maryland	*
Total Number of Projects for Organization: 2 **Total Known Dollars:**		*
National Institute for Occupational Safety and Health	MOSS, C Occupationally Induced Macular Degeneration National Institute for Occupational Safety and Health Cincinnati, Ohio	53,520
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**53,520**
Total Number of Projects, Department of Health And Human Services (Exclusive of NIH): 4 **Total Known Dollars:**		**53,520**

Other Federal Departments

Department of Defense, Army	LEWIS, A Fundamental Studies in the Molecular Basis of Laser-Induced Re Damage Cornell University Ithaca, New York	45,240
	WEISS, J F Diagnosis and Treatment of Acute Laser Injury Letterman Army Institute of Research San Francisco, California	100,000
	WEISS, J F The Role of Superoxide in the Posterior Segment of the Rabbit Letterman Army Institute of Research San Francisco, California	26,000
Total Number of Projects for Organization: 3 **Total Known Dollars:**		**171,240**
Department of Defense, Navy	GERI, G A Directional Sensitivity in Cone Mechanisms of Color Defective Ind Naval Submarine Medical Research Laboratory Groton, Connecticut	44,000
	SIPES, I G Toxic Effects of Oxygen on the Basement Membrane and Collag Components of Lung, Kidney, and Eye University of Arizona Tucson, Arizona	37,000
	WOLBARSHT, M L Foveal Visual Acuity Model Duke University Eye Center Durham, North Carolina	20,000
Total Number of Projects for Organization: 3 **Total Known Dollars:**		**101,000**
Department of Energy	WILLIAMS, T P Damaging Effects of Visible Light State University System of Florida Tallahassee, Florida	33,320
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**33,320**

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
National Science Foundation	CITRON, M C Nonlinear Spatial Integration in the Retina Estelle Doheny Eye Foundation Los Angeles, California	29,862
	CROUCH, R Synthetic Photosensitive Pigments Medical University of South Carolina Charleston, South Carolina	51,737
	FLETTERICK, R J Equipment for Design of a Position-Sensitive Detector University of California San Francisco, California	40,000
	HAFNER, G S Cellular Processes Involved in the Renewal of Photopigment Containing Membrane in an Invertebrate Photoreceptor Indiana University Foundation Indianapolis, Indiana	40,927
	LICKEY, M E Photoreceptors and Circadian Pacemakers in Activity Rhythms Oregon State Higher Education System Eugene, Oregon	53,000
	LILIEN, J E The Synthesis and Interaction of Components Mediating Specific Embryonic Cell Adhesion University of Wisconsin Madison, Wisconsin	*
	LITMAN, B J The Effect of Protein-Phospholipid Interactions on the Conformational Stability of Membrane Proteins University of Virginia Charlottesville, Virginia	*
	LOLLEY, R N Role for Cyclic GMP in Photoreceptor Function or Metabolism University of California Los Angeles, California	36,104
	NAKANISHI, K The Process of Visual Excitation by Synthetic Retinal Analogues Columbia University New York, New York	3,208
	PAK, W L Excitation Mechanisms in the Visual Pathway Purdue University West Lafayette, Indiana	37,000
	ROTHSCHILD, K J Multilamellar Biomembrane Films Boston University Boston, Massachusetts	38,000
	SCHELLMAN, J A Spectroscopy of Oriented Biological Systems University of Oregon Eugene, Oregon	58,000
	SPERLING, H G Color Receptor Mosaic of Primates University of Texas Houston, Texas	56,252
	WIGHTMAN, R M Electroanalytical Methods in Neurochemistry Indiana University Bloomington, Indiana	18,000

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	ZIMMERMAN, J Isolation, Purification, Utilization of Melanosomal Proteins in the Fowl University of Alabama Birmingham, Alabama	21,000
Total Number of Projects for Organization: 15		
Total Known Dollars:		**483,090**
Uniformed Services University of the Health Sciences	CUPPLES, H P A Study of Eye Trauma and Treatment in the Military Uniformed Services University of the Health Sciences Bethesda, Maryland	1,500
Total Number of Projects for Organization: 1		
Total Known Dollars:		**1,500**
Veterans Administration	ALLEN, J C National Collaborative Diabetic Retinopathy Study Veterans Administration Hospital Madison, Wisconsin	*
	CARLOW, T J Visual Evoked Potential in Retinitis Pigmentosa Veterans Administration Hospital Albuquerque, New Mexico	*
	CHOSY, J J An Epidemiological Study of Diabetic Retinopathy Veterans Administration Hospital Madison, Wisconsin	*
	DAVID, N Experimental Contrast Fundus Angiography Veterans Administration Hospital Miami, Florida	*
	DUJOVNY, M Ophthalmologic Applications of Computed Tomography in Nonhuman Primates Veterans Administration Hospital Pittsburgh, Pennsylvania	*
	GOLDBAUM, M H Studies of Angiogenesis, Healing, and Aging in the Retina and Choroid Veterans Administration Hospital San Diego, California	*
	GOLDBAUM, M H Quantitative Photocoagulation and Heat Distribution Veterans Administration Hospital San Diego, California	*
	GOODRICH, G L Clinical Evaluation of IT&T Pocketscope as an Aid to Night-Blind Veterans Veterans Administration Hospital Palo Alto, California	*
	HAMILTON, J D Treatment of Cytomegalovirus Retinitis with Transfer Factor Veterans Administration Hospital Durham, North Carolina	*
	LEVIN, S R Effect of Pyridoxine in Diabetic Neuropathy Veterans Administration Hospital Los Angeles, California	*
	LOLLEY, R N Maturation of Metabolic Capacity of Normal and Dystrophic Retina Veterans Administration Hospital Sepulveda, California	*

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	LOLLEY, R N Retinal Metabolism and Visual Function Veterans Administration Hospital Sepulveda, California	*
	MARMOR, M F Interaction Between Retina and Pigment Epithelium Veterans Administration Hospital Palo Alto, California	*
	O'GRADY, G Vitrectomy and Intraocular Proliferation Veterans Administration Hospital Miami, Florida	*
	PERESS, N S Immune Complex Disease of the Choroid Plexus and Ciliary Process Veterans Administration Hospital Northport, New York	*
	PILKERTON, A R Eye Membrane Research Veterans Administration Hospital Washington, D.C.	*
	POTTS, A M Smoking and Diabetic Retinopathy Veterans Administration Hospital Louisville, Kentucky	*
	PRICE, J Cerenkov Detector Subcomponent Veterans Administration Hospital Lubbock, Texas	*
	PRICE, J Histamine Tissue Assay Subcomponent Veterans Administration Hospital Lubbock, Texas	*
	PRICE, J Oscillatory Potential and Focal Electroretinogram Subcomponent, Diabetic Retinopathy Veterans Administration Hospital Lubbock, Texas	*
	STERN, W H Mechanisms of Retinal Edema Veterans Administration Hospital San Francisco, California	*
	TOH, S H Effect of Diabetic Control on the Course of Diabetic Retinopathy Veterans Administration Hospital Providence, Rhode Island	*
	TOSKES, P P Visual Function in Patients with Intestinal Malabsorption Veterans Administration Hospital Gainesville, Florida	*
	VAN HORN, D L Experimental Vitreal Membranes Veterans Administration Hospital Wood, Wisconsin	*
	VAN HORN, D L Effects of Sulfur Hexafluoride Gas in the Eye Veterans Administration Hospital Wood, Wisconsin	*

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	WEINSTEIN, G W Anterior Vitrectomy for Aphakic Cystoid Macular Edema Veterans Administration Hospital San Antonio, Texas	*
Total Number of Projects for Organization: 26 **Total Known Dollars:**		
Total Number of Projects, Other Federal Departments: 49 **Total Known Dollars:**		**790,150**

National Private, Philanthropic, and Voluntary Agencies

American Cancer Society, Inc.	MERCURIO, A M Glycosylation of Photoreceptor Membrane Proteins Massachusetts Institute of Technology Cambridge, Massachusetts	14,000
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**14,000**
Fight For Sight, Inc.	ABRAHAM, F A Regional Difference in the Physiology of Human Retinal Adaptation in Health and Disease The University of Michigan Detroit, Michigan	8,500
	AHN, J C Quantitative Evaluation of the Effectiveness of Various Therapeutic Agents Used to Suppress Anterior Uveitis Boston University Medical Center Boston, Massachusetts	1,000
	ANDREWS, L D Age-Related Chemical and Morphological Changes in the Retina Baylor College of Medicine Houston, Texas	4,900
	BOWNDS, D M Light-Induced Dephosphorylation of Photoreceptor Membranes University of Wisconsin Madison, Wisconsin	3,000
	BROMBERG, B B Cholinergic Receptor Distribution and Function in Ocular Ciliary Processes and Associated Uvea Louisiana State University New Orleans, Louisiana	4,275
	BROWN, R A Transglutaminase Labeling of Bovine Rhodopsin in the Disc Membrane Southern Illinois University Carbondale, Illinois	900
	CHAITIN, J The Role of Actin in Photoreceptor Cell Disk Shedding Jules Stein Eye Institute, University of California Los Angeles, California	900
	CHEN, J H Molecular Studies of Opsin mRNA from Eye Retinas New York University Dental Center New York, New York	8,800
	DEFOE, D Autoradiographic and Radiobiochemical Studies of Vitamin A Metabolism by the Vertebrate Retina University of California Los Angeles, California	1,050

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	DEFOE, D M Autoradiographic Studies of Vitamin A Metabolism by the Vertebrate Retina University of California Los Angeles, California	900
	FITE, K V The Origin of Retinal Dystrophy: An Experimental Analysis Utilizing Embryonic Eye Transplantation University of Massachusetts Amherst, Massachusetts	5,500
	FITZGERALD, P Studies on the Transport of Vitamin A from the Liver to the Retinal Pigment Epithelium University of California Los Angeles, California	900
	GOLD, G The Detection of Light Evoked Calcium Fluxes from Intact Rods University of California San Francisco, California	2,475
	GOLDMAN, B Molecular Analysis of Opsin Biosynthesis and Integration into Membranes The Rockefeller University New York, New York	7,500
	GUSS, R Endotoxin Induced Uveitis and its Relationship to Human Disease Stanford University Stanford, California	8,334
	HARKNESS, L The Organization of Chameleon Fovea Harvard University Cambridge, Massachusetts	3,000
	HOLMGREN, I Investigations of Ultrastructure and Pharmacological Aspects of Retinal Neurons Harvard University Cambridge, Massachusetts	10,000
	ISHIDA, A T Biochemical Characterization of Photoreceptor-Bipolar-Ganglion Retina University of California Los Angeles, California	900
	ITAYA, S K The Location of the Retinal Circadian Regulator University of Iowa Iowa City, Iowa	4,000
	KATZ, M L Role of Autoxidation in Aging and Disease of the Eye University of California Santa Cruz, California	1,050
	KEAN, E Adsorptive Endocytosis of Macromolecules by the Pigment Epithelium: Influence of Terminca Carbohydrates on the Process Case Western Reserve University Cleveland, Ohio	5,000
	MILLER, S Ocular Angiogenesis Factor Wills Eye Hospital Philadelphia, Pennsylvania	900

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	NICOL, G D Role of Cyclic Nucleotides in Photoreceptor Function University of California Berkeley, California	10,000
	PINO, R Permeability of Rat Choriocapillaris and Bruch's Membrane Louisiana State University Medical Center New Orleans, Louisiana	6,500
	PINO, R M Permeability and Development of Rat Choriocapillaris and Bruch's Membrane University of California San Francisco, California	5,100
	POKORNY, K Fine Structure and Cytochemistry of the Eye in Senile Macular Degeneration Mt. Sinai School of Medicine New York, New York	7,500
	PRAGER, T The Effect of Strict Diabetic Control by Continuous Subcutaneous Insulin Infusion Pump: Evaluation by Vitreous Fluorophotometry University of Texas Medical School Houston, Texas	6,000
	RAMSEUR, J E Profiles of Diabetic Retinopathy in Pregnant Diabetic Women Cornell University Medical Center New York, New York	700
	RAYMOND, L Search for a Vascular Inhibitory Factor in the Vitreous Boston Biomedical Research Institute Boston, Massachusetts	8,000
	RENIE, W A Experimental Retinal Neovascularization Johns Hopkins University Baltimore, Maryland	11,667
	SARTHY, P V Biochemical Studies of Isolated Cells from Mammalian Retina Baylor College of Medicine Houston, Texas	3,900
	SCHAEFFER, J Biochemical Studies of Retinal Degeneration Diseases University of California La Jolla, California	8,000
	SCHALL, B F Quantitative Ultrastructure of the Developing Blood-Retinal Barrier Montefiore Hospital and Medical Center Bronx, New York	4,875
	SIEVING, P A Human Early Receptor Potential (ERP) Studies of Several Hereditary Retinal and Choroidal Diseases University of Illinois Chicago, Illinois	7,000
	TABBARA, K F Acute Ocular Toxoplasmosis in Subhuman Primates University of California San Francisco, California	8,500

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	TABOR, G A Melanin Turnover in the Mammalian Retinal Pigment Epithelium Baylor College of Medicine Houston, Texas	7,534
	TAMAKI, R Individual Differences in the Color Vision Mechanisms of the Human Fovea in Normal and Abnormal Retinas University of Michigan Ann Arbor, Michigan	9,500
	ULSHAFER, R J The Role of Cyclic Nucleotides in Retinal Metabolism and Photoreceptor Degeneration Baylor College of Medicine Houston, Texas	4,545
Total Number of Projects for Organization: 38 **Total Known Dollars:**		**193,105**
National Society to Prevent Blindness	CHANT, S M Autoimmune Factors in Retinal Degeneration University of California Los Angeles, California	9,390
	MARCH, W F Feasibility Study for a Noninvasive Glucose Sensor McGee Eye Institute Oklahoma City, Oklahoma	5,000
	RANDERMAN-LITTLE, R Diabetic Retinopathy in *Mystromys albicaudatus* University of Missouri Columbia, Missouri	4,760
	SCHMIDT, J Ionic and Metabolic Regulation of Photoreceptor Excitability University of California La Jolla, California	5,000
	TAKEMOTO, D J Rod Outer Segment Disc Membrane: Relationship to Retinal Dystrophies Kansas State University Manhattan, Kansas	5,000
Total Number of Projects for Organization: 5 **Total Known Dollars:**		**29,150**
Research to Prevent Blindness, Inc.	AIKSTEIN, R B Retina-Vitreous Surgery Emory University Atlanta, Georgia	15,000
	ERNEST, J T Pathophysiology of Ocular Circulation University of Illinois Chicago, Illinois	15,000
	GOURAS, P Cell Biology and Biochemistry of Human Retinal Cells in Culture Columbia University New York, New York	15,000
	JAKOBIEC, F A Identification and Treatment of Eye Tumors Using Ultrasound Techniques Cornell University New York, New York	10,000

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	LAM, D M Study of Neural Transmitters in Human Retinas Baylor College of Medicine Houston, Texas	10,000
	RODIECK, R W Neurophysiology of Vertebrate Retina University of Washington Seattle, Washington	10,000
	SNIDER, J Abetalipoproteinemia and Gyrate Atrophy University of Oregon Portland, Oregon	3,000
	STELL, W K Retinal Circuitry University of California Los Angeles, California	25,000
	TSO, M O M Macular Disease University of Illinois Chicago, Illinois	25,000
	WU, L Electroretinogram Intensity-Response Function Johns Hopkins University Baltimore, Maryland	7,500
	YOUNG, R S L Photopic Blindness in Retinitis Pigmentosa University of Illinois Chicago, Illinois	7,500
Total Number of Projects for Organization: 11 **Total Known Dollars:**		**143,000**
Retinitis Pigmentosa Foundation	Center Grants Animal Facility	20,000
	Center Grants Small Grants Program	15,000
	Center Grants Retina Donor Program	40,000
	Center Grants Fellowship and Other Programs	51,000
	Center Grants Berman-Gund Laboratory Massachusetts Eye and Ear Infirmary	77,498
	Center Grants Wilmer Ophthalmological Institute Johns Hopkins University	72,121
	Center Grants New York University	83,180

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	Center Grants Jules Stein Eye Institute University of California, Los Angeles	63,811
	Center Grants Baylor College of Medicine	78,630
	Center Grants Hermann Eye Center University of Texas	24,843
	Center Grants Columbia University	66,341
	Center Grants Institute of Ophthalmology London, England	95,000
	Center Grants Eye and Ear Infirmary University of Illinois	28,280
	Center Grants Medical College of Virginia	39,918
Total Number of Projects for Organization: 14		
Total Known Dollars:		**755,622**
The Seeing Eye, Inc.	PATZ, A Studies on Retinal Neovascularization and its Control Johns Hopkins University Baltimore, Maryland	50,000
Total Number of Projects for Organization: 1		
Total Known Dollars:		**50,000**
Total Number of Projects, National Private, Philanthropic, and Voluntary Agencies: 70		
Total Known Dollars:		**1,184,877**
Total Number of Projects, Retinal and Choroidal Diseases: 175		
Total Known Dollars:		**5,327,675**

I. CORNEAL DISEASES

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
National Institutes of Health (Exclusive of NEI), Extramural		
Fogarty International Center	SAID, M E Ecology of Trachoma and Other Eye Infections Gameat Al Iskandaria Alexandria, Egypt	$118,894
	STJERNSCHANTZ, J W Irritative Response in the Rabbit Eye Yale University New Haven, Connecticut	9,200
Total Number of Projects for Organization: 2 **Total Known Dollars:**		**128,094**
National Cancer Institute	SHOLLEY, M M Radiation Response of Microvascular Growth Virginia Commonwealth University Richmond, Virginia	69,602
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**69,602**
National Institute of Allergy and Infectious Diseases	ARBEIT, R D Interferon Production in Immunity to Herpesviruses Boston University Boston, Massachusetts	52,098
	ARMSTRONG, J A Herpes Reactivations After Cranial Nerve Surgery University of Pittsburgh Pittsburgh, Pennsylvania	59,041
	AURELIAN, L CMI to Herpes Simplex Virus-2 Antigens in Genital Herpes Infections Johns Hopkins University Baltimore, Maryland	76,642
	BACHENHEIMER, S L Transcription of the Herpes Simplex Virus Genome University of North Carolina, Chapel Hill Chapel Hill, North Carolina	43,312
	CHING, C Y Human Natural Killer Cell in Recurrent Virus Infection Sloan Kettering Institute for Cancer Research New York, New York	*
	CHUSID, M J In Vivo Granulocyte Function After Transfusion Medical College of Wisconsin Milwaukee, Wisconsin	65,563

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	FRANCKE, B R Gene Functions of Herpes Simplex Virus Yale University New Haven, Connecticut	114,740
	FRENKEL, N B Replication and Transcription of Herpes Simplex Virus DNA University of Chicago Chicago, Illinois	87,601
	GERDES, J C Herpes Simplex Virus Reactivation During Recurrent Keratitis University of Colorado Denver, Colorado	49,437
	HAMMER, S M Persistent Herpes Infections of Human T Lymphoid Cells Massachusetts General Hospital Boston, Massachusetts	23,780
	HO, M Treatment of Primary Genital Herpes with Interferon University of Pittsburgh Pittsburgh, Pennsylvania	119,189
	HOFFMANN, P J Characterization of Herpes Simplex Virus Polypeptides Children's Hospital Columbus, Ohio	58,429
	KOHL, S Immune Cytotoxicity to Herpes Simplex Infected Cells University of Texas Health Science Center Houston, Texas	29,327
	KUNG, H-J Phosphonoacetic Acid: Antiviral and Cytotoxic Action Michigan State University East Lansing, Michigan	49,165
	LITTLE, S P Early Gene Functions of Herpes Simplex Virus Type 1 Sidney Farber Cancer Institute Boston, Massachusetts	19,040
	LOPEZ, C Genetics of Resistance to Herpes Simplex Virus-1 in the Mouse Sloan Kettering Institute for Cancer Research New York, New York	70,098
	MCKENDALL, R R Host Defenses in Herpesvirus Diseases of the Central Nervous System University of California San Francisco, California	35,910
	MERIGAN, T C Interferon, Immunity and Latent Viruses Stanford University Stanford, California	194,445
	MURPHY, F K Cellular Immunity in Human Herpes Simplex Infection University of Texas Health Science Center Dallas, Texas	34,206
	OAKES, J E Pathogenesis of Herpesvirus Infections University of South Alabama Mobile, Alabama	33,408

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	OAKES, J E Antibody Dependent Immunity to Herpesvirus Infection University of South Alabama Mobile, Alabama	45,991
	POWELL, K L Herpes Simplex Virus Non-Structural Proteins University of Leeds United Kingdom	43,574
	ROUSE, B T Immunity Mechanisms in Herpes Viruses Infections University of Tennessee Knoxville, Tennessee	82,974
	SADLER, J R Defective Herpes Viral DNA University of Colorado Health Sciences Center Denver, Colorado	39,277
	STEINHART, W L Membrane Function in Herpesvirus Infection Bowdoin College Brunswick, Maine	46,232
	WILCOX, K W Regulation of Gene Expression in Herpes Simplex Virus Infected Cells Medical College of Wisconsin Milwaukee, Wisconsin	69,081
Total Number of Projects for Organization: 27 **Total Known Dollars:**		**1,591,997**
National Institute of Dental Research	HILL, J M Iontophoresis of Ara-AMP to Herpes Virus Lesions Medical College of Georgia Augusta, Georgia	77,817
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**77,817**
National Institute on Aging	BALAZS, E A Keratin Sulfates and Aging of Cartilage and Cornea Columbia University New York, New York	88,260
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**88,260**
Total Number of Projects, National Institutes of Health (Exclusive of NEI), Extramural: 32 **Total Known Dollars:**		**1,955,770**

Other Federal Departments

Department of Agriculture	PUGH, G W Investigations of Pinkeye (Infectious Bovine Keratoconjunctivitis) of Cattle National Animal Disease Center Ames, Iowa	454,108
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**454,108**
Department of Defense, Air Force	TREDICI, T J Contact Lenses and Keratoconus Brooks Air Force Base San Antonio, Texas	24,040

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**24,040**
Department of Defense, Army	TREVITHICK, J R Tissue Culture and In Vivo Modelling of Corneal Opacification and Ocular Injuries Induced by Millimeter Waves University of Western Ontario London, Ontario, Canada	84,260
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**84,260**
Veterans Administration	BINDER, P S Refractive Keratoplasty Veterans Administration Hospital San Diego, California	*
	EIFERMAN, R A Specular Microscopy of Human Corneal Endothelial Veterans Administration Hospital Louisville, Kentucky	*
	EISENSTEIN, R Corneal Vascularization Veterans Administration Hospital Chicago, Illinois	*
	FOULKS, G N Trimethoprim-Sulfacetamide-Polymyxin B Topical Ophthalmic Solution for Ocular Infections Veterans Administration Hospital Durham, North Carolina	*
	INSLER, M S Surgical Intervention in Rabbit Alkali Burns: The Role of an Ambient Environment Veterans Administration Hospital New Orleans, Louisiana	*
	KLOTZ, W F Comparison of Tobramycin Versus Gentamicin Topical Ointment in the Treatment of External Bacterial Eye Infections Veterans Administration Hospital Memphis, Tennessee	*
	LEVY, N S Refractive Keratoplasty by Laser Coagulation Veterans Administration Hospital Lake City, Florida	*
	MINDEL, J S Ocular Cholinergic System Veterans Administration Hospital Bronx, New York	*
	SALBERG, D J Allergen-Induced Conjunctival Histamine Release: Effects of DSCG Therapy Veterans Administration Hospital Allen Park, Michigan	*
	SANDERS, D Studies in Ocular Physiology Veterans Administration Hospital Chicago, Illinois	*
	VAN HORN, D L Pathophysiology of Corneal Edema and Disease Veterans Administration Hospital Wood, Wisconsin	*

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	WOODBURY, G R Prevention of Immune Graft Rejection After Corneal Transplantation Veterans Administration Hospital Memphis, Tennessee	*
Total Number of Projects for Organization: 12 **Total Known Dollars:**		*
Total Number of Projects, Other Federal Departments: 15 **Total Known Dollars:**		**562,408**

National Private, Philanthropic, and Voluntary Agencies

American Cancer Society, Inc.	LOPEZ, C Immunology of Herpes Virus Infections Sloan Kettering Institute for Cancer Research Rye, New York	26,000
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**26,000**
Fight For Sight, Inc.	ARCE, C G Epithelium-Stromal Interaction During Corneal Wound Healing University of Florida Gainesville, Florida	8,000
	BERKOWTIZ, R Corneal Endothelial Structure and Function Louisiana State University New Orleans, Louisiana	5,000
	BROUGHAN, J Competitive Inhibition of Herpes Virus Complimentary Groups Scheie Eye Institute, University of Pennsylvania Philadelphia, Pennsylvania	1,050
	BROUGHAN, J H Isolation of Receptors for the Fusion Factor of Herpes Virus University of Pennsylvania Philadelphia, Pennsylvania	900
	DARTT, D Role of Calcium-Dependent Regulator Protein in Lacrimal Gland Secretion Tufts University Boston, Massachusetts	7,000
	DONNELLY, J Immunopathology of Infections of the Eye: *Onchocerca cervicalis* Infection of the Eye as a Model for Human Ocular Onchocerciasis University of Pennsylvania Philadelphia, Pennsylvania	8,000
	EUSTIS, H S Effect of Orgotein on Corneal Alkali Burns Louisiana State University New Orleans, Louisiana	700
	FEILER, L S Cornea Transplantation in Rabbits After the Induction of Specific Immune Unresponsiveness University of California San Francisco, California	8,000
	FONG, S L Vitamin A Storage and Metabolism in Human Eyes Baylor College of Medicine Houston, Texas	6,300

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	FUJIKAWA, L S Immune Mechanisms in the Human Corneal Allograft Reaction Pacific Medical Center San Fracisco, California	6,500
	GREENBERG, K Corneal Penetration of Flurbiprofen Mt. Sinai School of Medicine New York, New York	900
	GREINER, J V Mucus Secretory Vesicles in Nongoblet Epithelial Cells of the Conjunctiva University of Illinois Chicago, Illinois	3,600
	HENDRICKS, R HSV-1 Replication in Lymphocytes from Patients with Recurrent Herpetic Corneal Lesions University of Illinois Chicago, Illinois	7,725
	HETTINGER, M The Study of New Antiviral Drugs in Ocular and Latent Herpetic Infections Eye Research Institute of Retina Foundation Boston, Massachusetts	7,500
	HONG, B S Structure, Function, and Properties of a Distinctive Type of Collagen in the Cornea Texas Tech University Lubbock, Texas	5,000
	IVANOFF, J G Characterization of Herpesvirus Carbohydrates Scheie Eye Institute, University of Pennsylvania Philadelphia, Pennsylvania	900
	KENNEY, M C Effect of Aqueous Humor on Collagen Synthesis by Rabbit Corneal Endothelial Cells In Vitro University of California Davis, California	6,000
	KENNEY, M C Effect of Fibronectin on Collagen Synthesis by Rabbit Corneal Endothelial Cells In Vitro: Possible Relationship in Pathological States University of California Davis, California	8,000
	KENYON, K R Experimental Xerophthalmia and Keratomalacia in Vitamin A Deficiency Eye Research Institute of Retina Foundation Boston, Massachusetts	14,000
	MCDONALD, M Corneal Cell Killing and Protection by Antibody Louisiana State University New Orleans, Louisiana	10,000
	METCALF, J F Protection from Experimental Ocular Herpetic Keratitis by a Heat-Killed Virus Vaccine: Mechanism of the Protective Effect University of California Berkeley, California	5,000
	MUIRHEAD, J F Etidronate Therapy of Experimental Band Keratopathy University of California San Francisco, California	3,020

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	REICHERT, R W The Role of the T-Lymphocyte in Herpetic Stromal Keratitis University of Florida Gainesville, Florida	900
	REINACH, N Isolation and Growth of Corneal Epithelium by a Collagenase-Separation Technique New England Medical Center Hospital Boston, Massachusetts	4,800
	RUDY, M Enhancement of Ocular Tissue Damage in Aphakia by Radiant Energy II The University of Rochester Rochester, New York	1,250
	SCHANZLIN, D J The Histopathology of Corneal Neovascularization University of Southern California Los Angeles, California	5,000
	THORNE, G Reactivity of Patients' Lymphocytes Following the Implantation of a Corneal Allograft University of California San Francisco, California	10,000
Total Number of Projects for Organization: 27 **Total Known Dollars:**		**145,045**
National Society to Prevent Blindness	BOISJOLY, H Study of a Potent Systemic Interferon Inducer and a New Antiviral Drug in Ocular and Latent Herpetic Infections Eye Research Institute of Retina Foundation Boston, Massachusetts	4,000
	BURNETT, J M Recurrent and Persistent Corneal Epithelial Erosion Eye Research Institute of Retina Foundation Boston, Massachusetts	5,000
	HETTINGER, M E A Study of New Antiviral Drugs in Ocular and Latent Herpetic Infections Eye Research Institute of Retina Foundation Boston, Massachusetts	5,000
	PARDOS, G In Vivo Regenerative Potential of Epidermal Growth Factor on Corneal Endothelium of Owl Monkeys Mt. Sinai Medical Center New York, New York	5,795
	RITCH, R Transport ATPase in the Primate Ciliary Epithelium Mt. Sinai Medical Center New York, New York	4,919
	UDELL, I J Modulation of Mast Cell-Histamine Mediator System Eye Research Institute of Retina Foundation Boston, Massachusetts	1,225
Total Number of Projects for Organization: 6 **Total Known Dollars:**		**25,939**
Research to Prevent Blindness, Inc.	GORDON, Y J Corneal Surgery University of Pittsburgh Pittsburgh, Pennsylvania	15,000

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	GREEN, K Corneal Physiology Medical College of Georgia Augusta, Georgia	7,500
	KENYON, K R Epithelial Defects and Stromal Ulcers of Cornea Harvard University Boston, Massachusetts	10,000
	MEYERS-ELLIOTT, R Ocular Immunity and Immunopathology University of California Los Angeles, California	25,000
Total Number of Projects for Organization: 4		
Total Known Dollars:		**57,500**
Total Number of Projects, National Philanthropic and Voluntary Agencies: 38		
Total Known Dollars:		**254,484**
Total Number of Projects, Corneal Diseases: 85		
Total Known Dollars:		**2,772,662**

III. CATARACT

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
National Institutes of Health (Exclusive of NEI), Intramural		
National Institute of Child Health and Human Development	PIATIGORSKY, J Crystallin Synthesis in Development and Disease National Institute of Child Health and Human Development Bethesda, Maryland	$425,638
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**425,638**
Total Number of Projects, National Institutes of Health (Exclusive of NEI), Intramural: 1 **Total Known Dollars:**		**425,638**
Department of Health And Human Services (Exclusive of NIH)		
Health Services Administration	DAWSON, C Proposal to Study the Epidemiology of Cataracts in Pima Indian Population Health Services Administration Rockville, Maryland	*
	FISHKIND, W J Corneal Endothelium in Diabetes Mellitus Health Services Administration Rockville, Maryland	*
	KRAMAR, P O Effect of Microwave Irradiation on Ocular Blood Flow Health Services Administration Rockville, Maryland	5,000
	SANDERS, C D Clinical Investigation of Intraocular Lens Implantation Health Services Administration Rockville, Maryland	*
Total Number of Projects for Organization: 4 **Total Known Dollars:**		**5,000**
Total Number of Projects, Department of Health And Human Services (Exclusive of NIH): 4 **Total Known Dollars:**		**5,000**
Other Federal Departments		
Department of Defense, Army	BLAIR, G R Mechanisms of Radiation Damage in Fiber Optical Waveguides Hughes Research Laboratories Malibu, California	120,000

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**120,000**
Veterans Administration	ALLMAN, M I Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Tuskegee, Alabama	*
	COULTER, J B Measurement of Insulin in Aqueous and Vitreous of Rabbits Veterans Administration Hospital Temple, Texas	*
	DICKERSON, D Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Los Angeles, California	*
	FRIED, W I Clinical Investigation of Intraocular Lenses Veterans Administration Hospital North Chicago, Illinois	*
	GASTER, R N Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Long Beach, California	*
	GOMBOS, G Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Brooklyn, New York	*
	GOSTIN, S Investigation of Coburn Intraocular Lenses Veterans Administration Hospital Dallas, Texas	*
	GOSTIN, S B Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Dallas, Texas	*
	HOLT, J E Clinical Investigation of Intraocular Lenses Veterans Administration Hospital San Antonio, Texas	*
	HULL, D S Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Augusta, Georgia	*
	HUNKELER, J D Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Kansas City, Missouri	*
	ISBEY, E K Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Asheville, North Carolina	*
	LEVY, N S Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Lake City, Florida	*

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	LePeter, A J Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Salem, Virginia	*
	Mason, G L Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Hampton, Virginia	*
	McGrew, D R Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Loma Linda, California	*
	Mindel, J S Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Bronx, New York	*
	Patel, D J Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Buffalo, New York	*
	Perlman, E M Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Providence, Rhode Island	*
	Pilkerton, A R Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Washington, D.C.	*
	Pramhus, C G Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Fargo, North Dakota	*
	Promisee, J V The Effects of Two Preoperative Cataract Teaching Strategies on Knowledge and Perception of Anxiety Veterans Administration Hospital Tuskegee, Alabama	*
	Sanders, D R Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Chicago, Illinois	*
	Silverstone, D E Clinical Investigation of Intraocular Lenses Veterans Administration Hospital West Haven, Connecticut	*
	Smith, B F Clinical Investigation of Intraocular Lenses Veterans Administration Hospital New York, New York	*
	Stern, G A Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Gainesville, Florida	*
	Tulevech, C B Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Northport, New York	*

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	WEINSTEIN, G W Clinical Investigation of Intraocular Lenses Veterans Administration Hospital San Antonio, Texas	*
	WERTZ, R M Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Chicago, Illinois	*
	WOLTER, J R Clinical Investigation of Intraocular Lenses Veterans Administration Hospital Ann Arbor, Michigan	*
Total Number of Projects for Organization: 30 **Total Known Dollars:**		*
Total Number of Projects, Other Federal Departments: 31 **Total Known Dollars:**		**120,000**

National Private, Philanthropic and Voluntary Agencies

Fight For Sight, Inc.	JACKSON, J F In Vitro Amplification of the Sequences Coding for the Lens of Crystallin Proteins Columbia University New York, New York	1,875
	MELTZER, D W Energy Dispersive X-Ray Analysis of Intraocular Lenses Washington University St. Louis, Missouri	6,000
Total Number of Projects for Organization: 2 **Total Known Dollars:**		**7,875**
Juvenile Diabetes Foundation	CERAMI, A The Role of Nonenzymatic Glycosylation Rockefeller University New York, New York	39,166
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**39,166**
National Society to Prevent Blindness	GREINER, J V Organophosphates and Correlative Histopathologic Analysis of Cataract Lenses Illinois Eye and Ear Infirmary Chicago, Illinois	4,720
	WEISSMAN, B W Visual Evoked Response in Aphakic Children Fit with Soft Contact Lenses University of California Los Angeles, California	2,600
Total Number of Projects for Organization: 2 **Total Known Dollars:**		**7,320**
Research to Prevent Blindness, Inc.	CHYLACK, L T Cataractogenesis Harvard University Boston, Massachusetts	25,000

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	VARMA, S D Cataractogenesis and Chemical Inhibitors Duke University Durham, North Carolina	25,000
Total Number of Projects for Organization: 2		
Total Known Dollars:		**50,000**
Total Number of Projects, National Private, Philanthropic, and Voluntary Agencies: 7		
Total Known Dollars:		**104,361**
Total Number of Projects, Cataract: 43		
Total Known Dollars:		**654,999**

IV. GLAUCOMA

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
Department of Health And Human Services (Exclusive of NIH)		
Food and Drug Administration	FRAUNFELDER, F T National Registry of Possible Drug-Induced Ocular Side Effects University of Orgeon Portland, Oregon	$94,759
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**94,759**
National Institute on Drug Abuse	GREEN, K Ocular Response to Marijuana and its Derivatives Medical College of Georgia Augusta, Georgia	50,441
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**50,441**
Total Number of Projects, Department of Health And Human Services (Exclusive of NIH): 2 **Total Known Dollars:**		**145,200**
Other Federal Departments		
Department of Defense, Air Force	TREDICI, T J Glaucoma Brooks Air Force Base San Antonio, Texas	26,366
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**26,366**
Veterans Administration	FLACH, A J Nerve Terminal Degeneration Following Epinephrine Administration Veterans Administration Hospital San Francisco, California	*
	LEVY, N S Glaucoma and Displacement of the Lamina Scleralis Veterans Administration Hospital Lake City, Florida	*
	LEVY, N S Argon Laser Therapy For Open-Angle Glaucoma Veterans Administration Hospital Lake City, Florida	*
	LEVY, N S Effect of Lid Application of Hydrocortisone Ointment on Intraocular Pressure Veterans Administration Hospital Lake City, Florida	*

*Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	MINDEL, J S Role of Bioavailability in Response to Intraocular Pressure to Topical Glucocorticoids Veterans Administration Hospital Bronx, New York	*
	MINDEL, J S Topical Cholinesterase Inhibitors Prevent the Ocular Hypotensive Effect of Topical Dipivalyl Epinephrine Veterans Administration Hospital Bronx, New York	*
	WARD, R H A New Microsurgical Treatment for Glaucoma Veterans Administration Hospital Albany, New York	*
	WEINSTEIN, G W Peripheral Iridectomy vs. Trabeculectomy Veterans Administration Hospital San Antonio, Texas	*
	WORTHEN, D M Localized Argon Laser Defects in the Eye: A Model System for Studying Ocular Disease Veterans Administration Hospital San Diego, California	*
Total Number of Projects for Organization: 9 **Total Known Dollars:**		
Total Number of Projects, Other Federal Departments: 10 **Total Known Dollars:**		**26,366**

National Private, Philanthropic, and Voluntary Agencies

Fight For Sight, Inc.	ABRAMSON, D H Tear and Aqueous Assay for the Diagnosis of Ocular Tissue Cornell Medical Center New York, New York	4,000
	AHN, J C Quantitation of Inflammation in the Anterior Chamber and its Response to Therapy Boston University Boston, Massachusetts	600
	CHRISTENSON, J Donor Eye Contamination as Relates to Cause of Death: Investigated Aqueous Culture by Paracentesis Louisiana State University New Orleans, Louisiana	900
	DUNN, M W Glucocorticoid Levels in Human Aqueous Humor New York Medical College Valhalla, New York	5,000
	HAJEK A Human Trabecular Endothelial Cell Culture Washington University St. Louis, Missouri	16,500
	HASHIMOTO, J M Metabolic Aspects of Aqueous Humor Outflow Massachusetts Eye and Ear Infirmary Boston, Massachusetts	3,120

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	HODAPP, E The Visually Evoked Responses of Ocular Hypertensive, Glaucomatous, and Normal Individuals Washington University St. Louis, Missouri	8,000
	KAUFMAN, P Ciliary Body Circulation in Monkeys University of Wisconsin Madison, Wisconsin	6,980
	KNIGHTON, R Visual Function in Glaucoma University of Miami Miami, Florida	8,500
	KOREY, M S Compliance with Topical Pilocarpine Therapy Washington University St. Louis, Missouri	5,000
	MULBERG, A E Effect of Colchicine on Aqueous Humor Dyanimcs in Primates Mt. Sinai Hospital New York, New York	900
	SHABTO, U The Effect of Cannabinoids on Ciliary $(NA^+ - K^+)$-ATPase Mt. Sinai Hospital New York, New York	900
	TOWLE, V L Assessment of Optic Nerve Damage from Glaucoma and Ocular Hypertension Using Visually Evoked Potentials and Contrast Sensitivity Thresholds New England Medical Center Hospital Boston, Massachusetts	5,500
	YABLONSKI, M E The Fluorophotometric Measurement of Aqueous Flow Mount Sinai School of Medicine New York, New York	6,000
Total Number of Projects for Organization: 14 **Total Known Dollars:**		**71,900**
National Society to Prevent Blindness	HERMAN, P Pupillary Changes in Glaucoma Mt. Sinai Medical Center New York, New York	2,000
	HODAPP, E Compliance with Topical Pilocarpine Therapy Washington University St. Louis, Missouri	5,000
	RADIUS, R L Axonal Transport in Cat Eyes with Experimental Glaucoma Medical College of Wisconsin Milwaukee, Wisconsin	5,133
Total Number of Projects for Organization: 3 **Total Known Dollars:**		**12,133**
Research to Prevent Blindness, Inc.	CAMPBELL, D G Pathophysiology of Pigmentary and Open-Angle Glaucoma Emory University Atlanta, Georgia	10,000

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	QUIGLEY, H A Mechanism of Glaucoma Damage to Optic Nerve Johns Hopkins University Baltimore, Maryland	25,000
	SHABO, A L Iris Neovascularization and Neovascular Glaucoma University of California Los Angeles, California	25,000
Total Number of Projects for Organization: 3 **Total Known Dollars:**		**60,000**
Total Number of Projects, National Private, Philanthropic, and Voluntary Agencies: 20 **Total Known Dollars:**		**144,033**
Total Number of Projects, Glaucoma: 32 **Total Known Dollars:**		**315,599**

V. STRABISMUS, AMBLYOPIA, AND VISUAL PROCESSING

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
National Institutes of Health (Exclusive of NEI), Extramural		
Fogarty International Center	ANTONINI, A Interhemispheric Connections and Superior Colliculus University of Pennsylvania Philadelphia, Pennsylvania	$20,570
	BARBOSA DE SOUSA, A P Functions of Extrastriate Visual Cortex in Monkeys Princeton University Princeton, New Jersey	18,400
	BRAVO, H Interconnections of the Prestriate Cerebral Cortex California Institute of Technology Pasadena, California	16,333
	BURKHALTER, A Organization of Extrastriate Visual Cortical Area V4 California Institute of Technology Pasadena, California	18,840
	GATTASS R Functions of Prestriate Cortex in the Monkey Princeton University Princeton, New Jersey	8,984
	GOMEZ-RAMOS, M P Transneuronal Transport in the Optic Pathway University of Kansas Kansas City, Kansas	17,800
	KULJIS, R O Plasticity in the Extrageniculate Visual Pathways State University of New York New York, New York	18,430
	LENT, R Retinopathy of Aberrant Projections in Newborn Hamsters Massachusetts Institute of Technology Cambridge, Massachusetts	19,600
Total Number of Projects for Organization: 8 **Total Known Dollars:**		**138,957**
National Institute of Child Health and Human Development	ASLIN, R N Effects of Experience on Infant Perceptual Development Indiana University Bloomington, Indiana	38,177
	BANKS, M S The Development of Form Perception in Infancy University of Texas Austin, Texas	44,068

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	DUFFY, F H Experimental Neurophysiology Children's Hospital Medical Center Boston, Massachusetts	6,716
	FULTON, A Ocular Neurophysiology Children's Hospital Medical Center Boston, Massachusetts	13,432
	HAINLINE, L D Pattern Perception in Early Infancy City University of New York New York, New York	47,320
	HARRIS, W A Axonal Guidance and Impulse Activity in Development University of California La Jolla, California	75,063
	HIGHSTEIN, S M Mammalian Neurobiology and Vestibular Neurobiology Yeshiva University New York, New York	1,719
	KALINA, R E Ophthalmology Program University of Washington Seattle, Washington	3,747
	KESSEN, W Temporal Aspects of Young Infants' Visual Perception Yale University New Haven, Connecticut	111,080
	MCCLAY, D R Embryonic Cellular Recognition Duke University Durham, North Carolina	34,096
	MELTZOFF, A Psychology Research Program University of Washington Seattle, Washington	1,873
	MONTERO, V M Neuroanatomical Studies on the Visual System University of Wisconsin Madison, Wisconsin	41,061
	RAYNER, K Foveal and Parafoveal Cues in Reading University of Massachusetts Amherst, Massachusetts	39,250
	ROSE, S A Cognitive Deficits in High Risk Infants Yeshiva University New York, New York	116,576
	ROSE, S A Infant Perception and Neonatal Psychophysiology Yeshiva University New York, New York	1,720
	SALAPATEK, P H The Infant Visual System University of Minnesota Minneapolis, Minnesota	7,611

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	SPELLMAN, C Subjective Visual Acuity Assessment Procedures University of Kansas Lawrence, Kansas	21,301
Total Number of Projects for Organization: 17 **Total Known Dollars:**		**604,810**
National Institute of Dental Research	CONVERSE, J M Craniofacial Anomalies: Etiology and Treatment of Craniofacial Growth (General) New York University New York, New York	8,355
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**8,355**
National Institute of Environmental Health Sciences	MERIGAN, W H Environmental Toxicity Expressed in Visual Dysfunction University of Rochester Rochester, New York	99,555
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**99,555**
National Institute of General Medical Sciences	WITKOP, C J Albinism University of Minnesota Minneapolis, Minnesota	234,765
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**234,765**
National Institute of Neurological and Communicative Disorders and Stroke	AGRANOFF, B W Biochemical Concomitants of Nerve Regeneration University of Michigan Ann Arbor, Michigan	118,533
	ANDERSON, J H Central Mechanisms Controlling Gaze and Head Posture University of Minnesota Minneapolis, Minnesota	39,445
	ARBIB, M A Networks: Developmental Studies, Visuomotor Activity University of Massachusetts Amherst, Massachusetts	67,405
	BIZZI, E Study of Eye-Head Coordination Massachusetts Institute of Technology Cambridge, Massachusetts	156,071
	BLACK, F O Control of Human Postural Sway Trajectories Eye and Ear Hospital of Pittsburgh Pittsburgh, Pennsylvania	95,531
	BLOCK, G D Neural Basis of Organization University of Virginia Charlottesville, Virginia	32,545

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	BUNGE, M B Regeneration and Functional Recovery in Cerebral Cortex Washington University St. Louis, Missouri	9,143
	COHEN, B Conference on Oculomotor and Vestibular Physiology New York Academy of Sciences New York, New York	30,189
	COHEN, B The Oculomotor System and Body Postural Mechanisms Mount Sinai School of Medicine New York, New York	108,199
	CORNWELL, P R Neonatal Brain Damage and Vision Pennsylvania State University University Park, Pennsylvania	38,472
	DOTY, R W Detection of Microstimulation in Striate Cortex University of Rochester Rochester, New York	81,523
	ELAM, J S Study of Axonal Glycoproteins and Glycosaminoglycans Florida State University Tallahassee, Florida	53,372
	ENG, L F Central Nervous System Membranes and Acidic Proteins Stanford University Stanford, California	82,963
	FULLER, J H Muscular Control of Head Movements University of Illinois Chicago, Illinois	32,540
	GABOR, A J Neuronal Interaction of Epileptogenic Focus University of California Davis, California	46,352
	GAMBETTI, P Synaptosomes and Axons Studies Case Western Reserve University Cleveland, Ohio	140,733
	GRAFSTEIN, B Recovery from Axonal Injury Cornell University New York, New York	70,657
	HUNT, R K Cellular Mechanisms in Neuronal Specificity and Plasticity Johns Hopkins University Baltimore, Maryland	79,344
	INGLE, D J Motor Functions of Tectum, Pretectum, and Cortex Brandeis University Waltham, Massachusetts	79,580
	KANKEL, D R Control of Visual Neuron Morphology: Genetic Analysis (*Drosophila melanogaster*) Yale University New Haven, Connecticut	33,582

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	KELLY, A S Development of Animal Central Visual System University of California San Francisco, California	112,937
	KERNS, J M Development and Structure of Extraocular Motor Units George Washington University Washington, D C	46,169
	KRATZ, K E Visual Restriction and Development of X- and Y-Cells Louisiana State University New Orleans, Louisiana	31,099
	LA VAIL, J H Retrograde Axonal Transport in the Visual System (Animals) University of California San Francisco, California	94,166
	LLINAS, R R Neurobiology of the Cerebellar-Brain Stem System New York University New York, New York	213,710
	MARKHAM, C H Central Vestibular Mechanisms University of California Los Angeles, California	78,870
	MATTHEWS, M A Pharmacological Modification of Afferent Input Louisiana State University New Orleans, Louisiana	32,320
	MEYER, R L Growth of Retinotectal Connections University of California Irvine, California	47,759
	MURRAY, M Generation and Regeneration of Axons Medical College of Pennsylvania Philadelphia, Pennsylvania	125,135
	PECK, C K Sensory Rearrangement and Neural Plasticity Claremont Colleges Claremont, California	52,082
	PETERS, A Structure and Organization of the Cerebral Cortex Boston University Boston, Massachusetts	98,389
	RHOADES, R W Spinotectal Development Rutgers Medical School Piscataway, New Jersey	10,656
	RILEY, M T W Organization and Connections of Visual Cortex University of California San Francisco, California	93,158
	ROSS, W N Analysis of Graded Visual Signals New York Medical College Valhalla, New York	113,835
	SCHLAG, J D Conditioning of Pyramidal Activity by Sensory Inflow University of California Los Angeles, California	88,624

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	SHASHOUA, V E Biochemical Correlates of Neural Regeneration Harvard University Belmont, Massachusetts	63,375
	STEIN, B E Superior Colliculus: Development of Cell Properties Virginia Commonwealth University Richmond, Virginia	60,669
	STRUMWASSER, F Mechanisms of Innate and Entrained Patterns in Neurons California Institute of Technology Pasadena, California	88,575
	TURNER, J E Central Nervous System Regeneration: Nerve Growth Factor Wake Forest University Winston Salem, North Carolina	39,714
	ULINSKI, P S Reptilian Thalamus University of Chicago Chicago, Illinois	70,054
	WARD, P H Experimental Studies on Vestibular Mechanisms University of California Los Angeles, California	105,449
	WIGGINS, R C Starvation-Vulnerable Brain Subcellular Membranes University of Texas Houston, Texas	25,752
	YAGER, C D Behavioral Assessment of Recovery of Visual Function State University of New York New York, New York	37,015
Total Number of Projects for Organization: 43 **Total Known Dollars:**		**3,125,691**
National Institute on Aging	FELDMAN, M L Degeneration with Advancing Age in Rat Visual Cortex Boston University Boston, Massachusetts	43,460
	LEVINE, M L W Visual Evoked Potential Changes with Age in the Rat Morehouse College Atlanta, Georgia	38,399
	SEKULER, R W Human Aging and Visual Perception Northwestern University Evanston, Illinois	85,215
Total Number of Projects for Organization: 3 **Total Known Dollars:**		**167,074**
National Library of Medicine	LOEWENFELD, I E Handbook on the Pupil (Eye) Wayne State University Detroit, Michigan	64,610
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**64,610**

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
Total Number of Projects, National Institutes of Health (Exclusive of NEI), Extramural: 75		
Total Known Dollars:		**4,443,817**

National Institutes of Health (Exclusive of NEI), Intramural

National Institute of Neurological and Communicative Disorders and Stroke	FEINBERG, R The Study of Visual Abnormalities in the NINCDS Collaborative Perinatal Project National Institute of Neurological and Communicative Disorders and Stroke Bethesda, Maryland	30,800
	WAGNER, H G Neural Integration and Processing in the Mammalian Visual System National Institute of Neurological and Communicative Disorders and Stroke Bethesda, Maryland	6,160
	WAGNER, H G Neural Coding and Processing of Information in the Visual System National Institute of Neurological and Communicative Disorders and Stroke Bethesda, Maryland	36,960
Total Number of Projects for Organization: 3		
Total Known Dollars:		**73,920**
Total Number of Projects, National Institutes of Health (Exclusive of NEI), Intramural: 3		
Total Known Dollars:		**73,920**

Department of Health And Human Services (Exclusive of NIH)

Alcohol, Drug Abuse, and Mental Health Administration	BUTTER, C M Neurobehavioral Analyses of the Primate Visual System University of Michigan Ann Arbor, Michigan	52,009
	DIAMOND, I T Behavioral Analysis of Sensory Neocortex Duke University Durham, North Carolina	125,988
	GROSS, C G Functions of Occipitotemporal Cortex Princeton University Princeton, New Jersey	52,401
	JARVIS, C D Neural Coding of Visual Stimuli National Institute of Mental Health Bethesda, Maryland	*
	KATHOL, R G Follow-Up Study of Hysterical Amblyopia University of Iowa Iowa City, Iowa	3,350
	KENNEDY, C The Extended Visual System of the Macaque Monkey National Institute of Mental Health Bethesda, Maryland	*
	LEHMKUHLE, S W The Role of Perceived Depth in the Formation of Contours Brown University Providence, Rhode Island	12,782

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	LIN, C Development of the Functional Neural Connections University of Texas Dallas, Texas	12,506
	MILES, F A Eye/Head Coordination in the Primate: Neural Substrate and Plasticity National Institute of Mental Health Bethesda, Maryland	*
	MISHKIN, M Neural Mechanisms in Vision National Institute of Mental Health Bethesda, Maryland	*
	MISHKIN, M Functional Mapping of Sensory Systems in the Primate National Institute of Mental Health Bethesda, Maryland	*
	PASIK, P Neurophysiological Aspects of Visual Discrimination City University of New York New York, New York	124,640
	SOKOLOFF, L Studies on Regional Cerebral Circulation and Metabolism National Institute of Mental Health Bethesda, Maryland	*
	WERNER, J S Development of Human Visual Sensitivity University of Colorado Boulder, Colorado	9,999
Total Number of Projects for Organization: 14 **Total Known Dollars:**		**393,675**
Bureau of Radiological Health	WAXLER, M L Development of Mathematical Procedure for Constructing Visual Forms for Use in Assessing Visual Loss Following Excessive Exposure to Light Bureau of Radiological Health Rockville, Maryland	*
Total Number of Projects for Organization: 1 **Total Known Dollars:**		
Total Number of Projects, Department of Health And Human Services (Exclusive of NIH): 15 **Total Known Dollars:**		**393,675**

Other Federal Departments

Department of Agriculture	CARLSON, S C Neuronal Organization of the Visual System of Diptera University of Wisconsin Madison, Wisconsin	16,294
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**16,294**
Department of Defense, Air Force	COHEN, B Conference on Oculomotor and Vestibular Physiology New York Academy of Sciences New York, New York	5,000
	KENYON, R V The Effects of Enhanced Disparity on Manual Control Massachusetts Institute of Technology Cambridge, Massachusetts	9,999

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	MARTIN, W L Basic Visual Perceptual Processes for Displays Aerospace Medical Research Laboratory Dayton, Ohio	143,675
	OHLEY, W J A Computer Model of Saccadic Suppression University of Rhode Island Kingston, Rhode Island	10,000
	REGAN, D Development of Oculomotor Flying Skills Dalhousie University Nova Scotia, Canada	173,117
	REGAN, D A Basis for Evoked Potential Assessment of Certain Visual Functions Dalhousie University Nova Scotia, Canada	70,838
	RICHARDS, W A Natural Computation and Control National Science Foundation Washington, D C	125,000
	SEKULER, R W Sensitivity to Visual Motion Northwestern University Evanston, Illinois	153,103
	SEKULER, R W Detection of Motion Under Target Uncertainty and Peripheral Presentation Northwestern University Evanston, Illinois	23,762
	SMITH, R A Spatial Frequency Masking and Visibility University of New Hampshire Durham, New Hampshire	99,211
	TREDICI, T J Stereo Acuity School of Aerospace Medicine San Antonio, Texas	10,805
	TREDICI, T J Visual Standards School of Aerospace Medicine San Antonio, Texas	133,200
	WOESSNER, W M Visual Electro-Diagnostics School of Aerospace Medicine San Antonio, Texas	83,510
Total Number of Projects for Organization: 13 **Total Known Dollars:**		**1,041,220**
Department of Defense, Army	BEHAR, I Retinal and Extra-Retinal Factors in Visual Acquisition Army Aeromedical Research Laboratory Ozark, Alabama	*
	BEHAR, I Military Visual Problems: Assessment, Mechanisms, and Protection Army Aeromedical Research Laboratory, Fort Rucker Ozark, Alabama	105,000

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	HARDING, T H Aeromedical and Physiological Research for Aircrew Selection Retention and Biomedical Tolerance Standards Army Aeromedical Research Laboratory, Fort Rucker Ozark, Alabama	363,000
	HARVEY, L O Fourier Analysis in Form Perception University of Colorado Boulder, Colorado	39,645
	JAMPOLSKY, A Investigation of Visual Performance After Administration of Cholinergic Blocking Agents Optical Sciences Group, Inc. San Rafael, California	180,000
	LEIBOWITZ, H W Oculomotor Adjustments and Human Performance Pennsylvania State University University Park, Pennsylvania	4,000
	MARG, E Computer Controlled Ophthalmic Refraction University of California, Berkeley Berkeley, California	46,053
	MORTHLAND, B A Bright Pupil Measurement System Army Materiel Development and Readiness Command Research Triangle Park, North	90,000
	OATMAN, L C Auditory and Visual Interactions in Relation to Army Materiel/ Information Displays Army Materiel Development and Readiness Command Aberdeen, Maryland	163,000
	SIEGEL, J Brain Mechanisms Underlying Individual Differences in Reaction to Stress: An Animal Model University of Delaware Newark, Delaware	46,047
	SPEROS, P Spatial Resolution Thresholds During the Course of Dark Adaptation Texas Tech University Lubbock, Texas	37,540
	SPEROS, P Spatial Temporal Resolution of Local and Extended Stimuli in the Human Visual System Army Aeromedical Research Laboratory, Fort Rucker Ozark, Alabama	67,000
	WILEY, R W Research of Electro-Optical Systems and the Human Visual System Medical Research and Development Command, Bio-Optics Division Ozark, Alabama	*
	WILEY, R W Research of Visual Problems Medically Significant to Army Aviation Medical Research and Development Command, Bio-Optics Division Ozark, Alabama	*
Total Number of Projects for Organization: 14 **Total Known Dollars:**		**1,141,285**
Department of Defense, Navy	GOODSON, J E Determinants of Visual Acquisition Naval Aerospace Medical Research Laboratory Pensacola, Florida	123,000

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	HIXSON, W C Engineering Development of Visual/Vestibular Diagnostic Screening Equipment Naval Aerospace Medical Research Laboratory Pensacola, Florida	39,000
Total Number of Projects for Organization: 2 **Total Known Dollars:**		**162,000**
Environmental Protection Agency	DYER, R S Dopamine Depletion Slows Retinal Transmission Environmental Protection Agency Research Triangle Park, North Carolina	25,600
	UNKNOWN Assessment of Optokinetic Nystagmus as an Index of Neurotoxicity Environmental Protection Agency Research Triangle Park, North Carolina	14,400
Total Number of Projects for Organization: 2 **Total Known Dollars:**		**40,000**
National Aeronautics and Space Administration	BIZZI, E Role of Cortical and Cerebellar Areas in the Control of Eye-Head Coordination in Monkeys Massachusetts Institute of Technology Cambridge, Massachusetts	30,000
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**30,000**
National Science Foundation	ALLMAN, J M Functional Organization of Primate Visual System California Institute of Technology Pasadena, California	15,000
	ASLIN, R N Development of the Visual System in Human Infants Indiana University Bloomington, Indiana	55,058
	BAHILL, A T Modeling Interactions of Eye Movements and Locomotory Control Systems Carnegie Mellon University Pittsburgh, Pennsylvania	52,127
	BARLOW, R B Efferent Control of Visual Sensitivity Syracuse University Syracuse, New York	28,452
	BOWEN, R W Temporal and Spatial Factors in Human Color Vision Loyola University of Chicago Chicago, Illinois	29,310
	BRUN, R B Developmental Mechanisms in Eye Formation Texas Christian University Fort Worth, Texas	74,974
	BUTLER, A B Organization of Optic Tectum Georgetown University Washington, D C	44,266
	COHEN, D Use of Magnetic Techniques to Locate Electrical Currents in the Brain Massachusetts Institute of Technology Cambridge, Massachusetts	99,065

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	DeValois, R L Physiological and Psychophysical Studies of Spatial Vision University of California Berkeley, California	81,756
	Diamond, I T Laminar Organization of Cortex and Lateral Geniculate Body Duke University Durham, North Carolina	45,501
	Dubin, M W Development of Neural Networks in the Vertebrate Visual System University of Colorado Boulder, Colorado	31,905
	Ebner, F F Synaptic Plasticity in the Cerebral Cortex of Adult Animals Brown University Providence, Rhode Island	61,622
	Eskin, A Neural Basis of Entrainment of Circadian Rhythms University of Houston Houston, Texas	61,000
	Finlay, B L Control of Convergence in the Mammalian Central Nervous System Cornell University Ithaca, New York	42,568
	Fite, K V Neurobiological and Behavioral Studies of Vision University of Massachusetts Amherst, Massachusetts	39,513
	Graybiel, A M An Experimental Anatomical Study of the Oculomotor System Massachusetts Institute of Technology Cambridge, Massachusetts	78,923
	Gross, C G Functions of Extrastriate Visual Cortex in Macaque Monkeys Princeton University Princeton, New Jersey	65,692
	Guth, S L Psychophysical Studies of Human Color Vision Indiana University Bloomington, Indiana	64,860
	Hamilton, P V An Evaluation of Vision in Structurally Simple Eyes University of West Florida Pensacola, Florida	41,090
	Hartline, P H Multimodel Integration in the Optic Tectum Eye Research Institute of Retina Foundation Boston, Massachusetts	64,396
	Hunt, R K Development of Nerve Cell Specificity Johns Hopkins University Baltimore, Maryland	55,000
	Jacklet, J W Mechanisms of Circadian Rhythms in Neuronal Pacemakers Research Foundation of State University of New York Albany, New York	100,000
	Koenig, E Local Protein Synthesis in Axonal Growth Processes Research Foundation of State University of New York Albany, New York	106,000

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	LEICHNETZ, G R Cortical Afferents to Brainstem Pre-Oculomotor Nuclei Virginia Commonwealth University Richmond, Virginia	45,000
	MCDANIEL, W F Acquisition of Equipment to Study a Non-Primate Model of Posterior Neocortex Function Georgia College Milledgeville, Georgia	9,800
	NACHMIAS, J Mechanisms of Spatial Interaction in Human Vision University of Pennsylvania Philadelphia, Pennsylvania	59,043
	PALMER, L A Single and Multiple Unit Analysis in Striate Cortex of Cat University of Pennsylvania Philadelphia, Pennsylvania	65,010
	PUGH, E N Quantitative Characterization of Chromatic Adaptation Through the Two-Color Increment Threshold University of Pennsylvania Philadelphia, Pennsylvania	56,122
	RICHARDS, W A Natural Computation and Control Massachusetts Institute of Technology Cambridge, Massachusetts	234,196
	SANSBURY, R V Phase-Specific Mechanisms in Spatial Vision Trinity College Washington, D C	95,633
	SHEVELL, S K Mechanisms of Adaptation in Suprathreshold Visual Perception University of Chicago Chicago, Illinois	37,859
	SMITH, D C Equipment for the Study of Electrophysiological and Behavioral Evidence for Suppression in the Visual System Southern Illinois University Carbondale, Illinois	17,610
	STEINMAN, R M Human Oculomotor Capacity University of Maryland College Park, Maryland	60,000
	TELLER, D Y Vision in Human Infants University of Washington Seattle, Washington	41,000
	WEISSTEIN, N The Organization of Complex Visual Perception State University of New York Buffalo, New York	46,300
	ZOLLER, L C Morphometric Evaluation of Cellular and Subcellular Content Boston University Boston, Massachusetts	12,420
Total Number of Projects for Organization: 36 **Total Known Dollars:**		**2,118,071**

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
Veterans Administration	BARRON, K D Axon Reaction and Central Nervous System Regeneration Veterans Administration Hospital Albany, New York	*
	BOSSOM, J Effect of Optic Nerve Demyelination on the Visual Evoked Response Veterans Administration Hospital East Orange, New Jersey	*
	CARLOW, T J Saccadic Latency in Oculopharyngeal Muscular Dystrophy Veterans Administration Hospital Albuquerque, New Mexico	*
	CARLOW, T J Effect of Colored Pattern Visual Evoked Response in Multiple Sclerosis Veterans Administration Hospital Albuquerque, New Mexico	*
	CARLOW, T J Visual Evoked Potential (VEP) in Neuro-Ophthalmology Veterans Administration Hospital Albuquerque, New Mexico	*
	CARLOW, T J Nutritional Amblyopia and the Visual Evoked Response Veterans Administration Hospital Albuquerque, New Mexico	*
	CELESIA, G G Clinical Application of Computer Analysis for the Evaluation of Visual Function Veterans Administration Hospital Madison, Wisconsin	*
	CREEL, D J Comparison of Coisogenic Albino and Pigmented Mice Veterans Administration Hospital Salt Lake City, Utah	*
	CREEL, D J Visually Evoked Potentials, Electroretinograms and Reaction Time in Human Albinos Veterans Administration Hospital Salt Lake City, Utah	*
	CREEL, D J Primary Optic Projections in Pigmented and Albino Ferrets Veterans Administration Hospital Salt Lake City, Utah	*
	DAROFF, R B Neurophysiology and Pathophysiology of Eye Movements Veterans Administration Hospital Cleveland, Ohio	*
	DUSTMAN, R E Age-Related Changes in the Visually Evoked Response to Patterned Stimulation Veterans Administration Hospital Salt Lake City, Utah	*
	DUSTMAN, R E Ontogeny of Cortical Evoked Potentials as a Function of Maturation in the Stump-Tailed Macaque Monkey Veterans Administration Hospital Salt Lake City, Utah	*
	ENG, L F Central Nervous System Membranes and Acidic Proteins Veterans Administration Hospital Palo Alto, California	*

*Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	GOODRICH, G L Contrast and Magnification Ranges Using Closed-Circuit Television Systems Veterans Administration Hospital Palo Alto, California	*
	HANSCOM, T Protective Effects of Surgical Intraocular Cooling Veterans Administration Hospital Los Angeles, California	*
	MINDEL, J S Succinylcholine Effect on Ocular Deviations Veterans Administration Hospital Bronx, New York	*
	ROSEN, A D A Quantitative Study of the Influence of Antidromic Activity on Central Nervous System Sensory Function Veterans Administration Hospital Northport, New York	*
	SEYBOLD, M E Visual Evoked Potential Analysis of Neuro-Ophthalmologic Disorders Veterans Administration Hospital San Diego, California	*
	SINGH, S P Etiology and Pathogenesis of Endocrine Exophthalmos Veterans Administration Hospital North Chicago, Illinois	*
	TROOST, B T Effect of Age and Neurological Disease on Ocular Motor Performance Veterans Administration Hospital Cleveland, Ohio	*
	TROOST, B T Coordination of Head and Eye Movements in Humans Veterans Administration Hospital Pittsburgh, Pennsylvania	*
	TROOST, B T Effect of Visual Pursuit Defects on the Human Vestibulo-Ocular Reflex Veterans Administration Hospital Pittsburgh, Pennsylvania	*
Total Number of Projects for Organization: 23 **Total Known Dollars:**		
Total Number of Projects, Other Federal Departments: 92 **Total Known Dollars:**		**4,548,870**

National Private, Philanthropic, and Voluntary Agencies

Fight For Sight, Inc.	BIRCH, E Development and Maintenance of Normal Binocular Vision Massachusetts Institute of Technology Cambridge, Massachusetts	10,000
	BOWLING, D Central Projections of Single, Physiologically Identified Ganglion Cells from the Retinas of Cats and Monkeys Yale University New Haven, Connecticut	10,000
	BURDE, R The Pupil: A Neuroanatomical Study Washington University St. Louis, Missouri	4,500

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	CAMPOS, E Studies of Fixation in Amblyopia Louisiana State University New Orleans, Louisiana	6,000
	COX, T Pupillary and Visual Evoked Response Indicators of Optic Nerve Disease University of Iowa Iowa City, Iowa	8,500
	CRABBE, M J C Crosslinks and Glycosides of Scleral Collagen in Relation to Degenerative Myopia Oxford University Oxford, England	3,300
	EGGERS, H Clinical Evaluation of a New Amblyopia Treatment Columbia University New York, New York	3,500
	FLOREN, I Transmitter Analysis in Primate Visual System University of Washington Seattle, Washington	8,000
	GAWIENOWSKI, A M Investigation of Monoamine Oxidase in Eye Tissues University of Massachusetts Amherst, Massachusetts	3,000
	GRUNWALD, J Laser Doppler Measurement of Blood Flow in the Optic Nerve Scheie Eye Institute Philadelphia, Pennsylvania	8,000
	HILFER, S R Early Ocular Development Temple University Philadelphia, Pennsylvania	5,300
	KALIL, R Effects of Esotropia and Exotropia on the Response Properties of Lateral Geniculate Neurons in the Cat University of Wisconsin Madison, Wisconsin	5,000
	KAPLAN, E Input-Output Relationships in the Monkey LGN The Rockefeller University New York, New York	7,000
	KATZ, M Mechanism of Aging in the Mammalian Eye University of California Santa Cruz, California	900
	KELTNER, J L Mass Visual Field Screening University of California Davis, California	7,000
	SHAW, M Superior Colliculus Connection to the Oculomotor Nucleus New York University Medical Center New York, New York	1,620
	TOMLINSON, R D Site and Function of the TVP Cell in Oculomotor Control Johns Hopkins University Baltimore, Maryland	10,000

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	WOODWARD, W R Morphologic and Functional Changes in Visual Pathways Induced by the Neurotoxic Kainic Acid University of Oregon Health Sciences Center Portland, Oregon	5,000
Total Number of Projects for Organization: 18 **Total Known Dollars:**		**106,620**
National Multiple Sclerosis Society	FISCHER, B H Hyperbaric Oxygen Treatment of Multiple Sclerosis New York University New York, New York	9,000
	WIEDERHOLT, W C Feasibility Study of Myelin Basic Protein as a Therapeutic Agent in Multiple Sclerosis University of California La Jolla, California	5,000
Total Number of Projects for Organization: 2 **Total Known Dollars:**		**14,000**
National Society to Prevent Blindness	KEOUGH, E M Effect of Selective Tenotomy on Blood Flow to the Anterior Segment of the Eye Tufts-New England Medical Center Boston, Massachusetts	5,000
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**5,000**
Research to Prevent Blindness, Inc.	ROSENBAUM, A L Ocular Motility University of California Los Angeles, California	25,000
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**25,000**
Spencer Foundation	HELD, R M Maturational Factors in Human Development Massachusetts Institute of Technology Cambridge, Massachusetts	50,000
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**50,000**
Total Number of Projects, National Private, Philanthropic, and Voluntary Agencies: 23 **Total Known Dollars:**		**200,620**
Total Number of Projects, Strabismus, Amblyopia, and Visual Processing: 208 **Total Known Dollars:**		**9,660,902**

VI. VISUAL IMPAIRMENT AND ITS REHABILITATION

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
National Institutes of Health (Exclusive of NEI), Extramural		
National Institute of Neurological and Communicative Disorders and Stroke	CRAIG, J C Cutaneous Pattern Perception Indiana University Bloomington, Indiana	$94,024
	DILLER, L Functional Skill Remediation in Brain Damage New York University New York, New York	155,285
	LOOMIS, J M Factors Limiting the Tactile Perception of Form University of California Santa Barbara, California	24,097
	RONNER, S F Prosthesis-Related Studies on Visual Cortical Neurons Harvard University Boston, Massachusetts	87,839
Total Number of Projects for Organization: 4 **Total Known Dollars:**		**361,245**
Total Number of Projects, National Institutes of Health (Exclusive of NEI), Extramural: 4 **Total Known Dollars:**		**361,245**
Department of Health And Human Services (Exclusive of NIH)		
Alcohol, Drug Abuse, and Mental Health Administration	MCCONKIE, G W A Computer-Based Exploration of Skilled Reading University of Illinois Urbana, Illinois	98,809
	SACKEIM, H A Visual Functioning in Hypnotically Induced Blindness New York University New York, New York	6,323
Total Number of Projects for Organization: 2 **Total Known Dollars:**		**105,132**
Total Number of Projects, Department of Health And Human Services (Exclusive of NIH): 2 **Total Known Dollars:**		**105,132**

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
Other Federal Departments		
National Institute of Handicapped Research	GENENSKY, S Establish and Demonstrate the Effectiveness of Services to Partially Sighted Persons Santa Monica Hospital Medical Center San Francisco, California	422,481
	JAMPOLSKY, A Support for Rehabilitation Engineering Center Activities Related to Assisting Blind and Visually Impaired Persons San Francisco Rehabilitation Engineering Center San Francisco, California	375,000
Total Number of Projects for Organization: 2		
Total Known Dollars:		**797,481**
Veterans Administration	GOODRICH, G L Clinical Evaluation of Kurzweil Reading Machine Veterans Administration Hospital Palo Alto, California	*
	GOODRICH, G L Human Participation in Study of Visual Capacities and Orientation/ Mobility Skills in Low Vision Veterans Administration Hospital Palo Alto, California	*
Total Number of Projects for Organization: 2		
Total Known Dollars:		*
Total Number of Projects, Other Federal Departments: 4		
Total Known Dollars:		**797,481**
Total Number of Projects, Visual Impairment and Its Rehabilitation: 10		
Total Known Dollars:		**1,263,858**

* Funding data not available

VII. MULTIPROGRAM

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
National Private, Philanthropic, and Voluntary Agencies		
Research to Prevent Blindness, Inc.		
	Grants for Unrestricted Ophthalmic Research:	
	Albany Medical College Union University	$10,000
	Albert Einstein College of Medicine Yeshiva University	10,000
	Baylor College of Medicine, Houston	10,000
	Boston University	10,000
	Jules Stein Eye Institute University of California, Los Angeles	10,000
	University of California, San Francisco	10,000
	University of Southern California	10,000
	University of Chicago	10,000
	University of Colorado	10,000
	Columbia University	10,000
	Cornell University	10,000
	Duke University	10,000
	Emory University	10,000
	University of Florida	10,000
	Francis I. Proctor Foundation University of California, San Francisco	10,000
	Georgetown University	10,000
	Medical College of Georgia	10,000
	Harvard University	10,000
	University of Illinois	10,000
	University of Iowa	10,000

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	Jefferson Medical College	10,000
	Johns Hopkins University	10,000
	Louisiana State University	10,000
	University of Louisville	10,000
	University of Maryland	10,000
	Mayo Institutions	10,000
	University of Miami	10,000
	University of Michigan	10,000
	University of Minnesota	10,000
	University of Missouri	3,750
	Mount Sinai School of Medicine New York City	10,000
	University of North Carolina	3,750
	New York University	10,000
	University of Oklahoma	3,750
	University of Oregon	10,000
	Pacific Medical Center, San Francisco	10,000
	University of Pennsylvania	10,000
	University of Pittsburgh	10,000
	University of Rochester	3,750
	Stanford University	10,000
	Tufts New England Medical Center	10,000
	Texas Tech University	3,750
	Vanderbilt University	10,000
	Medical College of Virginia	10,000
	Washington University	10,000
	University of Washington, Seattle	10,000
	Wayne State University	10,000
	Medical College of Wisconsin	10,000
	University of Wisconsin	10,000
	Yale University	10,000

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
Total Number of Projects for Organization: 50		
Total Known Dollars:		**468,750**
Total Number of Projects, National Private, Philanthropic, and Voluntary Agencies: 50		
Total Known Dollars:		**468,750**
Total Number of Projects, Multiprogram: 50		
Total Known Dollars:		**468,750**

RESEARCH SPONSORED BY OTHER ORGANIZATIONS

Projects of Indirect Relevance to the National Eye Institute Program

I. RETINAL AND CHOROIDAL DISEASES

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
National Institutes of Health (Exclusive of NEI), Extramural		
National Institute of General Medical Sciences	EAKIN, R M Studies in Fine Structure University of California Berkeley, California	$58,523
	HONG, F T Photobiological Systems and Membrane Interfaces Wayne State University Detroit, Michigan	73,361
Total Number of Projects for Organization: 2 **Total Known Dollars:**		**131,884**
Total Number of Projects, National Institutes of Health (Exclusive of NEI), Extramural: 2 **Total Known Dollars:**		**131,884**
Department of Health And Human Services (Exclusive of NIH)		
Bureau of Radiological Health	WAXLER, M ERG Changes in the Pigeon Retina Induced by Excessive Exposure to Light Bureau of Radiological Health Rockville, Maryland	*
	WAXLER, M Light Induced Mydriasis Bureau of Radiological Health Rockville, Maryland	*
	WAXLER, M Visual Form Deficits Following Excessive Exposure of the Pigeon Eye to Light Bureau of Radiological Health Rockville, Maryland	*
Total Number of Projects for Organization: 3 **Total Known Dollars:**		*
Food and Drug Administration	LAWWILL, T Retinal Damage Caused by Chronic Exposure to Light University of Kansas Kansas City, Kansas	103,006
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**103,006**

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
Health Resources Administration	DONALDSON, S K Color Vision Deficiencies in People Taking Digoxin Rush University School of Nursing Chicago, Illinois	47,041
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**47,041**
National Institute on Alcohol Abuse and Alcoholism	ADAMS, A J Glare Recovery Mechanisms University of California Berkeley, California	37,960
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**37,960**
Total Number of Projects, Department of Health And Human Services (Exclusive of NIH): 6 **Total Known Dollars:**		**188,007**

Other Federal Departments

Department of Agriculture	BALL, H J Photosensitivity in Insects University of Nebraska Lincoln, Nebraska	11,289
	LOEW, E R Visual Pigment Changes During the Life Cycle of the American Eel *(Anguilla rostrata)* Cornell University Ithaca, New York	1,834
	WOOLLEY, D E Physiological Effects of Acute and Chronic Exposure to Environmental Toxicants University of California Davis, California	8,515
Total Number of Projects for Organization: 3 **Total Known Dollars:**		**21,638**
Department of Defense, Air Force	ALLEN, R G Effects of Laser Radiation on Visual Function Brooks Air Force Base San Antonio, Texas	474,207
	BRUCKNER, A P Laser Eye Measurement and Evaluation System University of Washington Seattle, Washington	239,793
	BRUCKNER, A P Biological Damage Induced by Ultrashort Second and Fourth Harmonic Light Pulses from a Mode-Locked ND Glass Laser University of Washington Seattle, Washington	97,368
	TABOADA Laser Safety Criteria Brooks Air Force Base San Antonio, Texas	288,349
	WOLBARSHT, M L Laser Effects on Retinal Functions Duke University School of Medicine Durham, North Carolina	90,955

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	ZUCLICH, J Research on the Ocular Effects of Laser Radiation, Part II Technology, Inc. San Antonio, Texas	962,901
Total Number of Projects for Organization: 6 **Total Known Dollars:**		**2,153,573**
Department of Defense, Army	BEATRICE, E S Laser Technology Letterman Army Institute of Research San Francisco, California	158,000
	BEATRICE, E S Physiological Basis of Laser Effects Letterman Army Institute of Research San Francisco, California	380,000
	BELKIN, M Ultrasonographic Diagnosis and Monitoring of Laser-Induced Retinal Edema Defense and Armed Forces Attache, Embassy of Israel Washington, D.C.	40,000
	HAM, W T Biological Applications and Effects of Optical Lasers Virginia Commonwealth University Richmond, Virginia	235,364
	LAWWILL, T Mechanisms of Retinal Damage from Chronic Laser Radiation University of Kansas College of Health Sciences Kansas City, Kansas	79,000
	MCGOWAN, J W Laser-Induced Damage in the Eye University of Western Ontario London, Ontario, Canada	36,000
	ROBBINS, D O Functional Assessment of Laser Irradiation Ohio Wesleyan University Delaware, Ohio	18,027
	SIEGFRIED, J B Electroretinogram (ERG) Implicit Time Pennsylvania College of Optometry Philadelphia, Pennsylvania	19,927
	SPENCER, W H The Effect of Coherent and Incoherent Light on Ocular Tissues and Visual Function in Nonhuman Subjects University of the Pacific Graduate School Stockton, California	59,827
Total Number of Projects for Organization: 9 **Total Known Dollars:**		**1,026,145**
National Science Foundation	GERN, W A Indoleamine Metabolism in Photoreceptors University of Wyoming Laramie, Wyoming	28,000
	WESTFALL, J A Symposium of Visual Cells in Evolution: December 27–30, 1980, Seattle, Washington American Society of Zoologists Thousand Oaks, California	14,004

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
Total Number of Projects for Organization: 2		
Total Known Dollars:		**42,004**
Veterans Administration	McCLAIN, C J Alterations in Zinc, Vitamin A and Retinol-Binding Protein in Chronic Alcoholics Veterans Administration Hospital Minneapolis, Minnesota	*
	RUSSELL, R M Mesopic Vision (Night Driving Vision) in the Recovering Alcoholic Veterans Administration Hospital Baltimore, Maryland	*
Total Number of Projects for Organization: 2		
Total Known Dollars:		*
Total Number of Projects, Other Federal Departments: 22		
Total Known Dollars:		**3,243,360**

National Private, Philanthropic, and Voluntary Agencies

American Cancer Society, Inc.	GILBERT, A Study of Malignancy in Human Tumor Cell Lines University of Pennsylvania School of Medicine Philadelphia, Pennsylvania	42,500
Total Number of Projects for Organization: 1		
Total Known Dollars:		**42,500**
Total Number of Projects, National Private, Philanthropic and Voluntary Agencies: 1		
Total Known Dollars:		**42,500**
Total Number of Projects, Retinal and Choroidal Diseases: 31		
Total Known Dollars:		**3,605,751**

* Funding data not available

II. CORNEAL DISEASES

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
National Institutes of Health (Exclusive of NEI), Extramural		
National Institute of Allergy and Infectious Diseases	ALEXANDER, E R Neonatal Chlamydia Infection: Incidence and Treatment University of Arizona Tucson, Arizona	$74,875
	BURKE, S D Synthesis of Aphidicolin, Stemodinol, and Khusimone University of South Carolina at Columbia Columbia, South Carolina	53,115
	COREY, L The Immunology of Genital Herpes University of Washington Seattle, Washington	34,584
	COREY, L Clinical Epidemiology—Pathogenesis of Genital Herpes University of Washington Seattle, Washington	139,074
	CRUMPACKER, C Study Natural History and Response to Therapy of Cutaneous Herpes Simplex Beth Israel Hospital Boston, Massachusetts	83,220
	GLASGOW, L A Infectious Diseases University of Utah Salt Lake City, Utah	106,946
	KAPLAN, A S Metabolism of Cells Infected with Nuclear DNA Viruses Vanderbilt University Nashville, Tennessee	284,115
	LEMASTER, S L Mapping of Herpes Simplex Virus DNA by Mutagenesis at Specific Sites University of Chicago Chicago, Illinois	16,219
	PERSON, S The Mechanism of Virus-Induced Cell Fusion Pennsylvania State University, University Park University Park, Pennsylvania	118,093
	REICHMAN, R C Host-Virus Interactions in Herpes Simplex Genitalis University of Vermont and State Agriculture College Burlington, Vermont	64,828

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	SANDRI, R M A Study of Interactions Between Two Herpesviruses University of Michigan Ann Arbor, Michigan	17,080
	SPRUANCE, S Studies of Recurrent Mucocutaneous Herpesvirus Hominis Infection University of Utah Salt Lake City, Utah	118,951
	STECHSCHULTE, D J Immunologic Mechanisms in Respiratory Disease and SLE University of Kansas Kansas City, Kansas	154,264
	WHITLEY, R Development of Central Lab to Study Treatment of Serious Viral Infections with Chemotherapeutics University of Alabama Birmingham, Alabama	379,152
Total Number of Projects for Organization: 14 **Total Known Dollars:**		**1,644,516**
National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases	STIRLING, C E Active Transport in Epithelia University of Washington Seattle, Washington	8,018
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**8,018**
National Institute of Child Health and Human Development	HAY, E D Role of Extracellular Matrix in Morphogenesis Harvard University Boston, Massachusetts	171,012
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**171,012**
National Institute of Dental Research	GARD, E A Sjögren's Syndrome, Aphthous Ulcers, and Behcet's Syndrome Litton Bionetics, Inc. Kensington, Maryland	32,116
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**32,116**
National Institute of General Medical Sciences	ZADUNAISKY, J A Chloride Transport and Osmoregulation New York University New York, New York	21,456
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**21,456**
Total Number of Projects, National Institutes of Health (Exclusive of NEI), Extramural: 18 **Total Known Dollars:**		**1,877,118**

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding

National Institutes of Health (Exclusive of NEI), Intramural

National Institute of Dental Research	HAND, A R Ultrastructure and Cytochemistry of Secretory Cells National Institute of Dental Research Bethesda, Maryland	80,270
	HASCALL, V C Structure and Biosynthesis of Proteoglycans National Institute of Dental Research Bethesda, Maryland	67,910
Total Number of Projects for Organization: 2		
Total Known Dollars:		**148,180**
Total Number of Projects, National Institutes of Health (Exclusive of NEI), Intramural: 2		
Total Known Dollars:		**148,180**

Department of Health And Human Services (Exclusive of NIH)

National Institute for Occupational Safety and Health	GOLDSMITH, W Fracture Resistance of Ophthalmic Lens/Frame Systems University of California Berkeley, California	57,771
Total Number of Projects for Organization: 1		
Total Known Dollars:		**57,771**
Total Number of Projects, Department of Health And Human Services (Exclusive of NIH): 1		
Total Known Dollars:		**57,771**

Other Federal Departments

Department of Agriculture	UNDERWOOD, B A Maternal/Fetal Vitamin A Requirements Evaluated by RDR Assessment Massachusetts Institute of Technology Cambridge, Massachusetts	190,000
Total Number of Projects for Organization: 1		
Total Known Dollars:		**190,000**
Department of Defense, Navy	LURIA, S M Feasibility of Increased Utilization of Astigmatic Periscope Operators Naval Submarine Medical Research Laboratory Groton, Connecticut	23,000
Total Number of Projects for Organization: 1		
Total Known Dollars:		**23,000**
Department of Energy	HEPLER, D I Occupational Safety and Toxicological Evaluation of Effluents Derived from in Situ Fossil Fuel Processing Elars Bioresearch Laboratory, Inc. Fort Collins, Colorado	23,000
Total Number of Projects for Organization: 1		
Total Known Dollars:		**23,000**
Veterans Administration	BENZON, H Sensitivity of Tests of Sympathetic Blockade Veterans Administration Hospital Chicago, Illinois	*

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	DRUTZ, D J Gonococcal Arthritis in the Dog Veterans Administration Hospital San Antonio, Texas	*
	GATMAITAN, B Diagnostic and Physiologic Studies of Herpes Simplex Virus Encephalitis Veterans Administration Hospital Allen Park, Michigan	*
	MADDISON, P J Humoral and Cellular Immunity to Certain Antigens in SLE Veterans Administration Hospital Buffalo, New York	*
	MICHALSKI, J P Mechanism of a Genetic Predisposition to Autoimmunity and Lymphoma Veterans Administration Hospital Long Beach, California	*
Total Number of Projects for Organization: 5		
Total Known Dollars:		*
Total Number of Projects, Other Federal Departments: 8		
Total Known Dollars:		**236,000**
Total Number of Projects, Corneal Diseases: 29		
Total Known Dollars:		**2,319,069**

* Funding data not available

III. CATARACT

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
National Institutes of Health (Exclusive of NEI), Extramural		
National Institute on Aging	BADA, J L Aspartic Acid Racemization: Relationship to Aging University of California La Jolla, California	$56,065
	LERMAN, S Biophysical and Morphological Studies on Aging Emory University Atlanta, Georgia	42,752
	WIDNELL, C C New Initiative in the Biology of Aging University of Pittsburgh Pittsburgh, Pennsylvania	88,791
Total Number of Projects for Organization: 3 **Total Known Dollars:**		**187,608**
Total Number of Projects, National Institutes of Health (Exclusive of NEI), Extramural: 3 **Total Known Dollars:**		**187,608**
Department of Health And Human Services (Exclusive of NIH)		
Bureau of Radiological Health	CARPENTER, R L Histopathology of Human Alleged Microwave Cataracts Bureau of Radiological Health Winchester, Massachusetts	*
	CARPENTER, R L Experimental Analysis of the Relation of Intraocular Temperature to Microwave Cataractogenesis Bureau of Radiological Health Winchester, Massachusetts	*
Total Number of Projects for Organization: 2 **Total Known Dollars:**		*
Food and Drug Administration	VAHEY, D Characterization and Measurement of the Edge Roughness and Curvature of Intraocular Lenses Battelle-Columbus Laboratories Columbus, Ohio	79,168
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**79,168**

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
Health Services Administration	GERBER, J The Degree of High Corneal Astigmatism in Navajo School Children and its Affect on Classroom Performance Health Services Administration Rockville, Maryland	4,000
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**4,000**
Total Number of Projects, Department of Health And Human Services (Exclusive of NIH): 4 **Total Known Dollars:**		**83,168**

Other Federal Departments

Department of Commerce, National Bureau of Standards	MUELLER, E Microtopographical Measurements of Intraocular Lenses Bureau of Medical Devices Laboratory Silver Spring, Maryland	20,000
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**20,000**
Department of Defense, Air Force	TREDICI, T J Microwave Effects Brooks Air Force Base San Antonio, Texas	6,408
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**6,408**
Department of Defense, Army	BEATRICE, E S Biological Investigation in Prediction and Protection Against Coherent Radiation Letterman Army Institute of Research San Francisco, California	*
	BEATRICE, E S Determination of Threshold Data from Coherent and Incoherent Radiation Sources Letterman Army Institute of Research San Francisco, California	*
	BOWIE, W H Low Level Infrared Irradiance Ocular Effects Technology, Inc. San Antonio, Texas	12,498
	HAM W T Biological Applications and Effects of Optical Lasers Virginia Commonwealth University Richmond, Virginia	98,819
	JAMPOLSKY, A Investigation of Visual Performance After Administration of Cholinergic Blocking Agents Optical Sciences Group, Inc. San Rafael, California	199,507
	TREVITHICK, J R Tissue Culture Modelling of Microwave-Induced Cataracts of the Eye Lens University of Western Ontario London, Ontario, Canada	79,120
	WOLBARSHT, M L The Origin of Cataracts in the Lens from Infrared Laser Radiation Duke University Durham, North Carolina	69,917

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
Total Number of Projects for Organization: 7 **Total Known Dollars:**		**459,861**
Department of Energy	AINSWORTH, E Study of the Cataract-Inducing Potential of High-Energy, Heavy Ions (HZE) University of California Berkeley, California	50,000
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**50,000**
National Science Foundation	TANAKA, T Phase Separation of Protein/Salt-Water Mixtures Massachusetts Institute of Technology Cambridge, Massachusetts	*
Total Number of Projects for Organization: 1 **Total Known Dollars:**		*
Uniformed Services University of the Health Sciences	BEEBE, D C Regulation of Lens Epithelial Cell Differentiation Uniformed Services University of the Health Sciences Bethesda, Maryland	20,643
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**20,643**
Veterans Administration	CHIN, G N Clinical Study of Bupivaccine for Retrobulbar Anesthesia Veterans Administration Hospital Seattle, Washington	*
	EDELHAUSER, H F Pathogenesis of Corneal Edema After Cataract Surgery Veterans Administration Hospital Wood, Wisconsin	*
	EIFERMAN, R A Intraocular Penetration of Aminoglycosides Veterans Administration Hospital Louisville, Kentucky	*
	MCAFEE, R D Biological Effects of Microwave Radiation Veterans Administration Hospital New Orleans, Louisiana	*
	PORTE, D Sorbinal: A Study to Determine Efficacy of Aldose Reductase Inhibitor in Preventing Deterioration in Lens and Nerve Function in Diabetes Veterans Administration Hospital Seattle, Washington	*
	SANDERS, D R Effect of Infusion Fluid Composition Upon Lens Function Veterans Administration Hospital Chicago, Illinois	*
	WEINSTEIN, H G Complex Carbohydrates in the Anterior Eye and Lens Veterans Administration Hospital North Chicago, Illinois	*
	WILLIS, I Cutaneous and Ocular Manifestation of Psoralen Therapy Veterans Administration Hospital Decatur, Georgia	*

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
Total Number of Projects for Organization: 8		
Total Known Dollars:		*
Total Number of Projects, Other Federal Departments: 20		
Total Known Dollars:		**556,912**
Total Number of Projects, Cataract: 27		
Total Known Dollars:		**827,688**

* Funding data not available

IV. STRABISMUS, AMBLYOPIA, AND VISUAL PROCESSING

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
National Institutes of Health (Exclusive of NEI), Extramural		
National Heart, Lung, and Blood Institute	BENNETT, P B High Pressure Nervous Syndrome in Liquid and Helium Breathing Dogs Duke University Durham, North Carolina	$5,741
	BERNE, R M Blood Flow and Nucleotide Metabolism (Animals) University of Virginia Charlottesville, Virginia	20,640
Total Number of Projects for Organization: 2 **Total Known Dollars:**		**26,381**
National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases	HARRIS, J W Studies of Erythrocyte Production and Destruction Case Western Reserve University Cleveland, Ohio	31,179
	KRISS, J P Studies on Long-Acting Thyroid Stimulator Stanford University Stanford, California	82,664
Total Number of Projects for Organization: 2 **Total Known Dollars:**		**113,843**
National Institute of Child Health and Human Development	DUFFY, F H Automated Neurophysiological Diagnosis of Dyslexia Children's Hospital Medical Center Boston, Massachusetts	91,485
	GALAMBOS, R EEG Responses During Cognitive Processing in Children Children's Hospital and Health Center San Diego, California	64,317
	GALIN, D Neuropsychological Study on Reading Disabilities University of California San Francisco, California	35,073
	KOVACH, J K Development of a Behavioral Phenotype Menninger Foundation Topeka, Kansas	77,769

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	ROBB, R M Eye Pathology Laboratory Children's Hospital Medical Center Boston, Massachusetts	13,432
	SIDMAN, R L Synaptic Organization Children's Hospital Medical Center Boston, Massachusetts	13,432
	VAUGHAN, H G Cerebral Dysfunction in Low Birth Weight Infants Yeshiva University New York, New York	140,970
	VILLABLANCA, J Effect of Brain Lesions on Neurological Development University of California Los Angeles, California	8,677
Total Number of Projects for Organization: 8 **Total Known Dollars:**		**445,155**
National Institute of Dental Research	PRUZANSKY, S Center for Craniofacial Anomalies University of Illinois Chicago, Illinois	31,422
	PRUZANSKY, S Evaluation of Craniofacial Surgery University of Illinois Chicago, Illinois	10,792
Total Number of Projects for Organization: 2 **Total Known Dollars:**		**42,214**
National Institute of General Medical Sciences	GRUNDY, B L Effects of Anesthetics on Cortical Evoked Potentials University of Pittsburgh Pittsburgh, Pennsylvania	13,187
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**13,187**
National Institute of Neurological and Communicative Disorders and Stroke	AUNON, J I Quantification of Single Evoked Potentials Purdue University West Lafayette, Indiana	66,876
	BENNETT, E L Unique A-Toxin Probes for N-Acetylcholine Receptors University of California Berkeley, California	60,589
	BIGNAMI, A Brain Specific Protein (GFA Protein) in Astrocytes Harvard University Boston, Massachusetts	61,854
	BINKLEY, S A Pineal Gland Function in Circadian Rhythms Temple University Philadelphia, Pennsylvania	64,145

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	BRAUTH, S E Comparative Neurobiology of the Basal Ganglia University of Maryland College Park, Maryland	37,380
	COHEN, S R Immunochemical Study of Myelination and Demyelination Johns Hopkins University Baltimore, Maryland	63,574
	CRAIN, S M Development of Organotypic Central Nervous System Networks in Culture Yeshiva University Bronx, New York	103,077
	CRANDALL, P H A Clinical Research Program for the "Partial" Epilepsies University of California Los Angeles, California	20,553
	DURLACH, N I Tactile Communication of Speech—Study of Tadoma Massachusetts Institute of Technology Cambridge, Massachusetts	118,090
	EDWARDS, S B Projections of the Midbrain Reticular Formation University of Virginia Charlottesville, Virginia	65,480
	MESULAM, M Connections of the Cerebral Cortex Beth Israel Hospital Boston, Massachusetts	79,310
	NIXON, R A Proteolysis in Axonal Degeneration and Myelinogenesis McLean Hospital, Division of Massachusetts General Hospital Belmont, Massachusetts	77,100
	PALAY, S L The Fine Structure of the Nervous System Harvard University Boston, Massachusetts	118,035
	POWERS, A S Function of the Nonmammalian Visual System Bryn Mawr College Bryn Mawr, Pennsylvania	33,560
	PRINCE, D A Epilepsy Research Program Stanford University Stanford, California	68,310
	RAO, J Organization of Sensory Corticostriatal Projections Louisiana State University New Orleans, Louisiana	32,069
	REIVICH, M Local Cerebral Glucose Metabolism in Man University of Pennsylvania Philadelphia, Pennsylvania	132,517
	SHIH, V E New Amino Acid Disorders in Cerebral Disease Harvard University Boston, Massachusetts	253,215

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	SIDMAN, R L Reduced Connections: Cause of Premature Neuron Aging Children's Hospital Medical Center Boston, Massachusetts	207,441
	SIEGEL, G J Neurocytology of (Na, K)-ATPase University of Michigan Ann Arbor, Michigan	101,825
	SINGER, M Nervous Regeneration: Intrinsic and Extrinsic Factors Case Western Reserve University Cleveland, Ohio	533,099
	SKOFF, R P The Study of Normal and Abnormal Gliogenesis Wayne State University Detroit, Michigan	82,080
	STELZNER, D J Factors in Central Nervous System Regeneration State University of New York Syracuse, New York	54,132
	STRUMWASSER, F Peptidergic and Circadian Neurons in Tissue Culture California Institute of Technology Pasadena, California	129,077
	WOLF, A P Positron Emitters and PETT Metabolic and Neurologic Science Brookhaven National Laboratory Upton, New York	100,940
	WORTHINGTON, C R Molecular Structure of Nerve and Photoreceptors Carnegie Mellon University Pittsburgh, Pennsylvania	93,289
Total Number of Projects for Organization: 26 **Total Known Dollars:**		**2,757,617**
National Institute on Aging	KLINE, D W Stimulus Persistence and Age: A Prospective Analysis University of Notre Dame Notre Dame, Indiana	34,836
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**34,836**
Total Number of Projects, National Institutes of Health (Exclusive of NEI), Extramural: 42 **Total Known Dollars:**		**3,433,233**

National Institutes of Health (Exclusive of NEI), Intramural

National Institute of Neurological and Communicative Disorders and Stroke	ALKON, D L Information Processing in Simple Nervous Systems National Institute of Neurological and Communicative Disorders and Stroke Bethesda, Maryland	554,400
	BRODY, L E Visual Evoked Potentials in Clinical Neurology and Neuro-Ophthalmology National Institute of Neurological and Communicative Disorders and Stroke Bethesda, Maryland	30,800

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
Total Number of Projects for Organization: 2		
Total Known Dollars:		**585,200**
Total Number of Projects, National Institutes of Health (Exclusive of NEI), Intramural: 2		
Total Known Dollars:		**585,200**

Department of Health And Human Services (Exclusive of NIH)

Alcohol, Drug Abuse, and Mental Health Administration	BANKS, W P Visual Organization and Information Processing Claremont Colleges Claremont, California	20,062
	BLOUGH, D S Comparative Psychophysics and Stimulus Control Brown University Providence, Rhode Island	66,480
	COHEN, B Eye Movements of Hyperkinetic Children Mount Sinai School of Medicine New York, New York	25,330
	ELLINWOOD, E H Sensitivity to Driving Impairment with Drugs of Abuse Duke University Durham, North Carolina	18,146
	EPSTEIN, W Studies of Perceptual Constancy University of Wisconsin Madison, Wisconsin	40,184
	HAITH, M M Perceptual and Cognitive Development in Human Infants University of Denver Denver, Colorado	114,088
	HERMAN, J H The Role of Eye Movements in Perception and Dreaming University of Texas Dallas, Texas	102,296
	HILLYARD, S A Electrophysiological Studies of Selective Perception University of California La Jolla, California	95,887
	KUBOVY, M Attention and Pre-Attention in Audition and Vision Yale University New Haven, Connecticut	32,405
	LAWERGREN, B G Studies of Perceptual Grouping State University of New York New York, New York	42,722
	LONG, G M Basis and Consequences of Iconic Persistence Villanova University Villanova, Pennsylvania	15,709
	MCCONKIE, G W Ongoing Language Processes in Reading University of Illinois Urbana, Illinois	78,952

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	PALMER, S E Representation and Processing of Spatial Structure University of California Berkeley, California	30,261
	POMERANTZ, J R Illusory Pausing State University of New York Buffalo, New York	13,883
	ROCK, I Determinants of Anorthoscopic Perception Rutgers, The State University of New Jersey Newark, New Jersey	57,178
	ROSINSKI, R R Development of Pictorial Perception University of Pittsburgh Pittsburgh, Pennsylvania	30,908
	STAMM, J S Neuronal Organization of Prefrontal Functions State University of New York Stony Brook, New York	38,010
	WALLACE, B Proprioception, Hypnotic Anesthesia, and Coordination Cleveland State University Cleveland, Ohio	15,704
	WOLFORD, G I Errors in Visual Information Processing Dartmouth College Hanover, New Hampshire	29,421
Total Number of Projects for Organization: 19 **Total Known Dollars:**		**867,626**
National Institute for Occupational Safety and Health	SMITH, M Job Stress in Video Display Operations National Institute for Occupational Safety and Health Rockville, Maryland	142,300
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**142,300**
Total Number of Projects, Department of Health And Human Services (Exclusive of NIH): 20 **Total Known Dollars:**		**1,009,926**

Other Federal Departments

Department of Defense, Air Force	DONCHIN, E Transient Visual Evoked Response University of Illinois Urbana, Illinois	33,279
	HARMOND, C Head and Eye Motion in Multiaxis Oscillating Inertial Force Environments Aerospace Medical Research Laboratory Dayton, Ohio	49,302
	KLIENMAN, D L GZ Effects of High G Forces on Human Operator Performance University of Connecticut Storrs, Connecticut	70,000
	KRAFT, C L Peripheral Cues and Color in Visual Simulation Boeing Corporation Seattle, Washington	17,357

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	LINDHOLM, E Behavioral and Psychophysiological Assessment of Skill Development Arizona State University Tempe, Arizona	67,923
	MARTIN, W L Tri-Service Subpanel on Displays Aerospace Medical Research Laboratory Dayton, Ohio	69,794
	MEYER, A U Dynamics of Two Dimensional Eye-Head Tracking New Jersey Institute of Technology Newark, New Jersey	10,000
	MILLER, J W Enhancement of Aircrew Performance by Optical Equipment School of Aerospace Medicine San Antonio, Texas	185,694
	MONROE, E G Advanced Simulator for Pilot Training Air-to-Air Combat Simulation Software Development Human Resources Laboratory Chandler, Arizona	*
	OLOFF, C M Effects of Brain Oxygen Modification on Retinal Function Aerospace Medical Research Laboratory Dayton, Ohio	28,084
	REED, L E Psychological Aspects of Sensor Simulation Wright Patterson Air Force Base Dayton, Ohio	*
	RICHARDS, W A Efficient Computations and Representations of Visible Surfaces Massachusetts Institute of Technology Cambridge, Massachusetts	72,293
	ROSCOE, S N Ground-Referenced Visual Orientation with Imaging Displays New Mexico State University Las Cruces, New Mexico	82,315
	SPERLING, G Visual Motion Perception and Visual Attentive Processes New York University New York, New York	130,000
	STERN, J A Aspects of Visual Search Activity Related to Attentional Processes and Skill Development Washington University St. Louis, Missouri	32,493
Total Number of Projects for Organization: 15 **Total Known Dollars:**		**848,534**
Department of Defense, Army	ADAMS, A J Night Vision Performance in Detection and Identification of Moving Targets After Glare Optical Sciences Group, Inc. San Rafael, California	54,854
	BARNES, J Night Vision/Smoke Army Materiel Development and Readiness Command Aberdeen, Maryland	239,000

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	BEATRICE, E S Care of the Combat Injured Eye Letterman Army Institute of Research San Francisco, California	*
	BIEDERMAN, I Human Information Processing of Real World Scenes Research Foundation, State University of New York New York, New York	50,000
	COHEN, A S Feed-Forward Programming of Car Driver's Eye Movements: A System Theoretical Approach Federal Institute of Technology Zurich, Switzerland	61,020
	COHEN, A S Development of a General Model of Car Driver's Eye Movement Sequences and Effects and Variables Federal Institute of Technology Zurich, Switzerland	33,640
	FARNE, M Distance Perception as Modified by Movement Universita degli Studi di Bologna Bologna, Italy	4,351
	FINNERTY, A E Holographic Methods of Imaging Through Obscured Atmosphere ARRADCOM Ballistic Research Laboratory Dover, New Jersey	75,000
	FISHER, D F Human Visual Aspects of the Army Soldier Army Materiel Development and Readiness Command Aberdeen, Maryland	182,000
	HILL, A Graphic Evaluation on Orthophotomaps Glasgow College of Technology Glasgow, Scotland	24,624
	HOLLY, F Research of Visual Problems Medically Significant to the Army Army Aeromedical Research Laboratory, Fort Rucker Ozark, Alabama	142,000
	JAMPOLSKY, A Investigation of Visual Performance After Administration of Cholinergic Blocking Agents Optical Sciences Group, Inc. San Rafael, California	180,000
	JOHNSON, J C Health Hazard Assessment and Implications of Whole-Body Vibration Associated with Advanced Combat Vehicle Technologies Medical R&D Command, Field Research and Biomedical Application Division Ozark, Alabama	*
	MAZURCZAK, J Human Eye Movements as Related to Visual Search, Information Extraction, and Target Detection Army Materiel Development and Readiness Command Aberdeen, Maryland	176,000
	NODINE, C F Eye Movement Parameters in Information Processing Strategies in Visual Search Temple University Philadelphia, Pennsylvania	22,709

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	NOTTERMAN, J M Individual Differences in Behavioral Aspects of Sensory Motor Organization Princeton University Princeton, New Jersey	58,377
	SHEENA, D The Performance of Experiments on Visual Search and Camouflage Whittaker Corporation Waltham, Massachusetts	49,976
	SHEENA, D Research in the Area of Vision as Related to Search and Camouflage G and W Applied Science Laboratory Waltham, Massachusetts	199,348
	SUTHERLAND, N S Third European Conference on Visual Perception University of Sussex Brighton, England	2,070
	VERONA, R W Research of Electro-Optical Systems and the Human Visual System Army Aeromedical Research Laboratory, Fort Rucker Ozark, Alabama	120,000
	Vos, J J European Conference on Visual Perception Institute for Perception Soesterberg, Netherlands	2,000
	WILEY, R W Development of Measurement Techniques for the Medical Assessment of Visually Coupled System (VCS) Components Medical Research and Development Command, Bio-Optics Division Ozark, Alabama	*
Total Number of Projects for Organization: 22 **Total Known Dollars:**		**1,676,969**
Department of Defense, Navy	BREGLIA, D Head and Eye Tracking System Naval Training Equipment Center Orlando, Florida	30,000
	CHISUM, G T Visual Performance of Aircrew Personnel Under Spectrally Selective Filter Conditions Naval Air Development Center Warminster, Pennsylvania	85,000
	COHEN, M M Evoked Critical Responses as an Indicator of G Tolerance Naval Air Development Center Warminster, Pennsylvania	32,000
	CORREIA, M J Determination of the Dynamic Response Characteristics of Vertical Vestibular Systems as Related to Spatial Orientation University of Texas Galveston, Texas	45,000
	FOX, R Surveillance: Interaction of Solid Figures in Visual Space Vanderbilt University Nasvhille, Tennessee	30,000
	KINNEY, J A Visual Requirements for Operators of Visual Sonar Displays Naval Submarine Medical Research Laboratory Groton, Connecticut	62,000

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
	RUD, R Night Vision Devices for Airborne Mine Countermeasures Applications Naval Air Development Center Warminster, Pennsylvania	75,000
Total Number of Projects for Organization: 7 **Total Known Dollars:**		**359,000**
Environmental Protection Agency	DYER, R S Neonatal Triethyltin Exposure Alters Adult Electrophysiology in Rats Environmental Protection Agency Research Triangle Park, North Carolina	13,400
Total Number of Projects for Organization: 1 **Total Known Dollars:**		**13,400**
National Aeronautics and Space Administration	MARKHAM, C H Otolith-Visual Center Connections University of California School of Medicine San Francisco, California	25,000
	YOUNG, L R Etiology and Prevention of Motion Sickness in Space Massachusetts Institute of Technology Cambridge, Massachusetts	150,000
Total Number of Projects for Organization: 2 **Total Known Dollars:**		**175,000**
National Science Foundation	BINKLEY, S A Pineal Function Temple University Philadelphia, Pennsylvania	36,200
	DAWSON, W W Physiology of Vision in Dolphins and Other Cetaceans University of Florida Gainesville, Florida	99,165
	GREENOUGH, W T A Unified Anatomical Approach to Memory University of Illinois Urbana, Illinois	100,000
	NEARY, T J Anterior Thalamic Nucleus Connections in the Anuran Creighton University Omaha, Nebraska	110,000
	RUFF, H A The Visual Recognition of Motions and of Moving Objects Yeshiva University Bronx, New York	61,824
	SCHRIER, A M Visual Fixations During Task Performance Brown University Providence, Rhode Island	100,000
	WRIGHT, A A Retinal and Central Processing of Wavelength Information in Avians University of Texas Houston, Texas	81,039
	ZOLLER, L C Morphometric Evaluation of Cellular and Subcellular Content Boston University Boston, Massachusetts	12,420

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
Total Number of Projects for Organization: 8		
Total Known Dollars:		**600,648**
Veterans Administration	ADAMS, A H Auditory Brainstem Response in Localized Central Nervous System Disease Veterans Administration Hospital Long Beach, California	*
	CANNON, D S Ethanol Dependency in the Rat Veterans Administration Hospital Salt Lake City, Utah	*
	CREEL, D J Effect of Alcohol on Visually Evoked Potential and Reaction Time in Human Albinos Veterans Administration Hospital Salt Lake City, Utah	*
	FISHKIN, S M Perceptual Functioning in Psychopathology Veterans Administration Hospital Oklahoma City, Oklahoma	*
	GOFF, W R EEG and AEP Recording from Depth Electrodes in Epileptics Veterans Administration Hospital West Haven, Connecticut	*
	HUTTON, J T Gaze Behavior in Normal Aging, Dementia, and Depression Veterans Administration Hospital Minneapolis, Minnesota	*
	KRON, R The Effect of Alcohol in Visual Movement Perception Veterans Administration Hospital Philadelphia, Pennsylvania	*
	PANDYA, D N Connections of the Cerebral Cortex in Primates Veterans Administration Hospital Bedford, Massachusetts	*
	SILBERT, J E The Normative Aging Study Veterans Administration Hospital Boston, Massachusetts	*
	TOURTELLOTTE, W W Cerebral Evoked Responses in Multiple Sclerosis Therapy Veterans Administration Hospital Los Angeles, California	*
	VAUGHAN, G M Pineal Function in the Human Veterans Administration Hospital San Antonio, Texas	*
	WEINSTEIN, H G Proteoglycan and Glycoprotein Macromolecules in Tissue Structure and Function Related to Development, Senescence, and Disease Veterans Administration Hospital North Chicago, Illinois	*
Total Number of Projects for Organization: 12		
Total Known Dollars:		

* Funding data not available

Supporting Organization	Principal Investigator Project Title Institution City and State	1980-1981 Funding
Total Number of Projects, Other Federal Departments: 67		
Total Known Dollars:		**3,673,551**

National Private, Philanthropic, and Voluntary Agencies

National Multiple Sclerosis Society	BARRON, K D Demyelination in a New Rat Mutant Union University Albany, New York	1,500
	BUNGE, R P Factors Influencing Functional Expression in Myelin-Forming Cells Washington University St. Louis, Missouri	5,000
Total Number of Projects for Organization: 2		
Total Known Dollars:		**6,500**
Total Number of Projects, National Private, Philanthropic, and Voluntary Agencies: 2		
Total Known Dollars:		**6,500**
Total Number of Projects, Strabismus, Amblyopia, and Visual Processing: 133		
Total Known Dollars:		**8,708,410**

☆ U S GOVERNMENT PRINTING OFFICE 1983 421-894/7062

HV2332
V825 Support for vision
Vol.3 research: Vision research
a National plan, 1983
1987.

DATE DUE

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NEW YORK, N.Y. 10011

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NIH Publication No. 83-2477